REPORT

Centre for Mental Health

Building a better future

The lifetime costs of childhood behavioural problems and the benefits of early intervention

Michael Parsonage, Lorraine Khan & Anna Saunders

Contents

Key


EDUCATION


LOCAL AUTHORITY


CRIMINAL JUSTICE


HOUSING


NHS


BULLYING


SOCIAL SERVICES

Executive Summary

This report is part of a wider programme of work on early intervention undertaken by Centre for Mental Health with funding from the Esmée Fairbairn Foundation. It uses economic analysis to explore the long-term consequences of severe behavioural problems that start in childhood and the benefits of effective early intervention, including possible savings in public expenditure.

Early behavioural problems – background

About 5% of children aged 5-10 display behavioural problems which are sufficiently severe, frequent and persistent that they justify diagnosis as a mental health condition ('conduct disorder'). A further 15-20% have problems which fall below this threshold but are still serious enough to merit concern.

Depending on age, problem behaviours may include: persistent disobedience, angry outbursts and tantrums, physical aggression, fighting, destruction of property, stealing, lying and bullying. For about half of the children affected, serious problems will persist into adolescence and beyond.

A wide range of risk factors, both genetic and environmental, may be implicated in the early development of severe behavioural problems. Particular importance attaches to adverse influences within the family environment, such as maltreatment and harsh, inconsistent or neglectful parenting.

Outcomes over the life course

Severe and persistent behavioural problems in young children are associated with a wide range of adverse outcomes, not only in childhood but throughout the life course and even extending into succeeding generations. Many different domains of life may be affected.

Mental health: continuing mental health difficulties in adolescence and adulthood, including increased rates of depression and anxiety, alcohol and drug abuse, personality disorder, self-harm and suicide.

Physical health: increased rates of morbidity, disability and premature mortality, often associated with risky behaviours such as smoking and alcohol or drug misuse; high rates of teenage pregnancy.

Child protection: high risk of being placed on child protection registers and being taken into care.

Education: high rates of truancy and school exclusion; frequent involvement in bullying as both perpetrator and victim; poor educational attainment.

Employment: high rates of unemployment; increased likelihood of employment in low-paid jobs and in jobs held for short periods of time; increased dependency on welfare benefits.

Crime: high rates of involvement in all types of criminal activity including violent crime, often starting at an early age.

Homelessness: substantially increased risk of experiencing homelessness.

Social networks: few if any friends, whether in childhood or in later life; limited involvement in social activities.

Relationships: high rates of involvement in personal relationships which are short-lived and characterised by abuse and violence, including mutual violence.

Parenthood: increased rates of child abuse and maltreatment; children at increased risk of being taken into care and of developing behavioural problems.

Children with severe behavioural problems are generally around four to ten times more likely to experience these adverse outcomes in later life than those with no such problems.

The costs of behavioural problems

Various attempts have been made to estimate the long-term costs of severe behavioural problems, usually within specific age ranges rather than across the full life course, but all of these are likely to under-estimate the true costs by a substantial margin. Reasons for this include the very broad range of adverse outcomes to be included and the difficulty of expressing some of these in monetary terms, e.g. the impact of severe behavioural problems on wellbeing and quality of life.

Most studies focus on costs falling on the public sector, particularly during childhood and adolescence. A broad average of these estimates suggests an annual cost to the Exchequer of around £5,000 per child with severe behavioural problems, taking into account the extra costs falling on health, social care, education and, from age 10 onwards, the criminal justice system.

One attempt to measure costs from a societal rather than public sector perspective suggests that the overall lifetime costs of severe behavioural problems amount to around £260,000 per case. (The lifetime costs of moderate problems are put at around £85,000 per case.) Costs relating to crime are the biggest single component, accounting for more than two-thirds of the total.

This estimate still omits many costs. For example, bullying is a common behaviour of people with severe behavioural problems and one study estimates that, after taking into account other influences, the lifetime earnings of a victim of serious bullying are reduced by around £50,000 on average. Moreover, this figure relates to lost earnings for a single victim of bullying and there are many more victims than there are perpetrators.

The effectiveness of parenting programmes

Because quality of parenting is a critical determinant of child outcomes, a number of behavioural training programmes have been developed which aim to improve the quality of parent-child relationships and the skill of parents in managing child behaviour.

A large body of evidence shows that, if well implemented, these programmes can be very effective in improving child behaviour, particularly by encouraging positive parenting. They also improve the behaviour of siblings and the mental health and wellbeing of participating parents.

In broad terms, the effectiveness of parenting programmes is much the same across a wide range of family types and ethnic groups. The programmes are also at least as effective for children with the most severe behavioural problems as for those with more moderate difficulties.

The main gap in the evidence concerns the extent to which the benefits of parenting programmes in terms of improved child behaviour are maintained over time. This mainly reflects a lack of studies collecting long-term follow-up data rather than any clear evidence that initial improvements are not sustained.

The effectiveness of parenting programmes is reduced by half or more if they are poorly implemented, e.g. by employing staff who are not properly trained or supervised.

The costs and benefits of intervention

Few studies of parenting programmes have collected detailed economic data, particularly in relation to outcomes. Assessment of costs and benefits measured in monetary terms thus requires a modelling approach which combines quantitative data from effectiveness trials with economic information from other sources.

A number of studies have pursued this approach, providing information on two main questions: are parenting programmes good value for money for society as a whole and, on a narrower view, do these programmes pay for themselves through future savings in public spending?

All studies under-estimate the aggregate returns from early intervention because of omitted benefits. In particular, no attempts are made to include an imputed monetary valuation for the benefits of improved mental health among children with behavioural problems in terms of its impact on their wellbeing and quality of life. Such benefits are the fundamental justification for service provision and yet they find no place in the economic literature on early intervention.

Also omitted in all studies are a range of third-party effects such as the impact of parenting programmes on the mental health and quality of life of parents and siblings and on the wellbeing of others such as the victims of bullying and children in the next generation.

Even allowing for these limitations, the available evidence indicates that parenting programmes are very good value for money, both for society as a whole and from the narrower perspective of the public sector. This is not surprising, as the costs of intervention are relatively low while the potential benefits are extremely high, reflecting the many costly consequences of severe behavioural problems that may be mitigated by intervention.

Studies suggest that the average cost of bringing a child with conduct disorder below a clinical threshold as a result of a parenting programme is around £1,750 per case. Set against this, the lifetime costs of conduct disorder, measured against a baseline of moderate behavioural problems, have been put at around £175,000 per case. Lifetime costs thus need to be reduced by just 1% to cover the costs of the intervention – a strikingly small proportion. In practice, only a fraction of long-term costs are likely to be saved, but the general point that the costs of early intervention are very low relative to the potential benefits remains valid.

Taking a broad average of the results of four economic modelling studies, it is estimated that every £1 invested in parenting programmes yields measurable benefits to society of at least £3. In addition, the costs of intervention are more than covered by subsequent savings in public spending.

These are almost certainly conservative conclusions, mainly because of omitted benefits but also because all four studies use a range of conservative assumptions and modelling procedures which in combination do not necessarily yield the most likely result.

Detailed year-by-year analysis of costs and benefits is available in one of the four studies and this suggests that up to 60% of the costs of parenting programmes are recovered within two years through savings in public expenditure and all costs within around five years. These savings largely accrue to health and education budgets. In later years savings start to build up in the criminal justice system and in the long term it is this part of the public sector that secures the biggest financial returns.

Finally, economic analysis highlights the importance of implementing programmes effectively, as failure to do this carries a very heavy penalty in terms of benefits forgone. Relatively low-cost measures which reduce the likelihood that participating parents will drop out mid-way through a programme, e.g. provision of free transport and crèche facilities, are likely to have a particularly high return. And, because the funds for early intervention are always likely to be constrained, it is important that parenting programmes are targeted at those families and children who are likely to benefit most.

WHAT ARE SEVERE BEHAVIOURAL PROBLEMS?

All children behave badly from time to time, but some display behavioural problems which are so severe, frequent and persistent that they justify diagnosis as a mental health condition: conduct disorder.

For about half of the children concerned, these problems will persist into adolescence and beyond and are associated with a wide range of damaging and costly outcomes throughout the life course and even extending into succeeding generations.

Depending on age, problem behaviours may include: persistent disobedience, angry outbursts and tantrums, physical aggression, fighting, destruction of property, stealing, lying and bullying.

HOW COMMON ARE THEY?

ABOUT 5% OF CHILDREN AGED 5-10 HAVE CONDUCT DISORDER

CONDUCT DISORDER IS TWICE AS HIGH AMONG BOYS AS GIRLS

RATES OF CONDUCT DISORDER ARE HIGHER AMONG CHILDREN FROM DISADVANTAGED BACKGROUNDS

A FURTHER 15-20% DISPLAY BEHAVIOURAL PROBLEMS

WHICH FALL BELOW THIS THRESHOLD BUT ARE STILL SERIOUS ENOUGH TO MERIT CONCERN BECAUSE OF THE INCREASED RISK OF ADVERSE OUTCOMES IN LATER LIFE

WHAT IS THE COST?

ESTIMATED LIFETIME COST OF SEVERE BEHAVIOURAL PROBLEMS

£260,000
PER CHILD

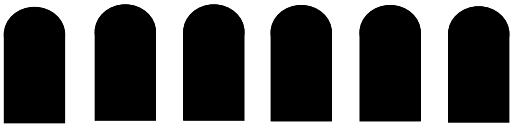
£1,300
PER CHILD

ESTIMATED OF COST OF A PARENTING PROGRAMME

NEGATIVE OUTCOMES

2 x MORE LIKELY TO LEAVE SCHOOL WITH NO QUALIFICATIONS

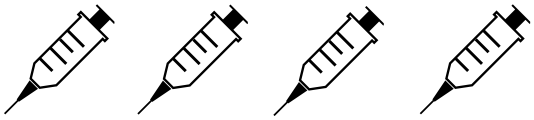
6 x MORE LIKELY TO DIE BEFORE AGE 30



3 x MORE LIKELY TO BECOME A TEENAGE PARENT

8 x MORE LIKELY TO BE ON THE CHILD PROTECTION REGISTER

4 x MORE LIKELY TO BE DEPENDENT ON DRUGS



20 x MORE LIKELY TO END UP IN PRISON

WHAT CAN WE DO?

Parenting is a critical determinant of child outcomes. In particular, positive parenting protects children from developing severe behavioural problems. Proven parenting programmes improve the quality of parent-child relationships and the skill of parents in managing challenging behaviour in their children.

This report looks in detail at the large and compelling body of evidence which demonstrates the effectiveness and cost-effectiveness of this type of early intervention.

WHY INVEST IN THIS INTERVENTION?

Provided that they are well implemented, parenting programmes are very good value for money. The potential benefits of early intervention are so high relative to its cost that only a modest improvement in outcomes is needed to support a strong economic case.

These programmes more than pay for themselves through future savings in public spending, spread across a range of budgets including education, health, social care and criminal justice. And there are also substantial benefits to wider society and to individuals and their families, not all of which can easily be measured in monetary terms.

1. Introduction

This report is one of a number of outputs that have resulted from a 30-month programme of work on early intervention for children with behavioural problems undertaken by Centre for Mental Health, with funding from the Esmée Fairbairn Foundation. The main focus of this programme is on how to improve the implementation of evidence-based parenting programmes in support of children aged up to 11 with behavioural difficulties.

The first major output of the programme was *A chance to change*, a report published in late 2012 which analysed in detail the key factors that determine the successful delivery of evidence-based parenting interventions and the main barriers that currently hamper such efforts (Brown, Khan & Parsonage, 2012). Prominent among the barriers were identified a range of issues relating to funding. Most obviously these include the difficulty of securing resources for any new or expanded form of service provision at a time when public sector budgets are under severe restraint. But over and above the perennial challenge of competing with other programmes for limited funds, it is clear that early intervention programmes face additional hurdles. In particular, the financial benefits of these programmes accrue over long periods of time and they are also distributed across a wide range of different agencies in the public sector and beyond. Under current budgetary arrangements in central and local government, the funding of early intervention programmes is always likely to fall victim to some combination of short-termism and free-riding (i.e. attempts by different agencies to reap the financial rewards of early intervention without incurring any of the costs).

There is no easy solution to these problems and possible reforms such as pooled or shared budgets are likely to take many years to implement on a national scale. In the meantime, this report seeks to inform and improve decision making under existing arrangements, by mapping out in detail the full costs of childhood behavioural difficulties and hence the potential benefits of effective early intervention, year by year and budget by budget. Most existing studies in this area tend to understate both the overall scale of costs associated with severe behavioural problems in childhood and the possible scope for relatively quick pay-offs from early intervention. More detailed and comprehensive information on costs and benefits may help to bring home to decision makers the huge impact of behavioural problems among children and why these problems matter to a wide range of different agencies. The analysis also highlights the importance of maximising the returns from early intervention, for example by targeting programmes at those who will benefit most and by avoiding false economies in programme delivery which may greatly reduce effectiveness.

2: Early behavioural problems – background

Behavioural problems

Serious behavioural or conduct problems among children and young people may take a variety of forms and these are to some extent age-specific. For example, among children aged 3-7 they typically include persistent disobedience, angry outbursts and tantrums, provocation, physical aggression towards other children, destruction of property and blaming others. At ages 8-11 the list may also include swearing, lying, stealing, rule-breaking, physical fights, bullying, cruelty to animals and other children and fire-setting. And at ages 12-17 the problem behaviours can include not just many of the foregoing but also violence, robbery, vandalism, substance misuse, persistent truanting, running away from home, early sexual activity and teenage pregnancy.

In some cases these problems become so severe, frequent and persistent that they justify a diagnosis of 'conduct disorder', a mental health condition recognised in all major illness classification systems, in which the scale of conduct problems is such as to impair a child's own functioning as well as causing significant distress to others.

Conduct disorder is the most common mental health condition found among children and young people. At the same time, much larger numbers display behavioural problems which, while distressing, are insufficiently severe to merit a clinical diagnosis. It is, however, important not to overlook children with such sub-threshold problems, as the evidence shows very clearly that these can still signal an elevated risk of adverse outcomes in later life.

The population of children and young people with conduct disorder divides into two sub-groups, distinguished by age of onset (Moffitt, 1993). In the first group, the disorder becomes apparent at an early age, i.e. before ten, with evidence of serious behavioural problems often emerging as early as two or three. Early onset is associated with a high degree of persistence into later life; indeed, problematic behaviour in the early years has been shown to have the highest continuity into adulthood of all measured human traits except intelligence (Scott, 2004). According to NICE, about half of all children with early-onset conduct disorder have serious problems that persist into later life (NICE, 2013). In the second group, conduct disorder begins in adolescence and continues beyond this phase of development in only a small minority of cases.

In line with the focus of our work programme on early intervention, the rest of this report concentrates on children with early-onset problems. The terms 'conduct disorder' and 'severe behavioural problems' are used interchangeably to describe problems which are sufficiently severe to meet the criteria for diagnosis of a mental health condition, and similarly the terms 'conduct problems' and 'behavioural problems' are used interchangeably to describe problems which fall short of a diagnostic threshold.

Prevalence

According to the most recent official survey of mental health in children and young people (Green *et al.*, 2005), the prevalence of conduct disorder among children aged 5-10 is 4.9%, equivalent to around 30,000 children in each one-year cohort in this age range in England. More than twice as many boys are affected as girls: 6.9% of all boys in the 5-10 age range against 2.8% of girls. Conduct disorder also has a strong gradient by socio-economic class, being nearly three times as common among children from unskilled and workless households as among those from the professional and managerial groups.

Less detailed and reliable information is available on the numbers of children displaying behavioural problems which fall short of a diagnosable mental health condition, essentially because there is no universal agreement on the appropriate definition and classification of such cases. However, most studies suggest that, in addition to those with diagnosable conduct disorder, a further 15-20% of children can be identified as having problems of moderate severity that may carry an elevated risk of adverse long-term consequences.

Risk factors

Research on the causes of early-onset conduct disorder has identified a wide range of environmental risk factors as well as an important genetic component. The environmental risk factors include:

- socio-economic variables, such as large family size, single parenthood, family poverty and deprived neighbourhoods;
- parental characteristics, such as mental illness, substance misuse, involvement in criminal activity and low educational attainment; and
- family relationships, such as harsh, inconsistent or neglectful parenting, physical or sexual abuse and family discord.

These risk factors tend to have a cumulative effect. The likelihood of conduct disorder rises progressively as an individual is subject to an increasing number of adverse influences in early life (Murray *et al.*, 2010).

Risk factors may also interact, with gene-environment interactions being particularly important. This means that genetically determined differences between individuals may control their susceptibility to a specific environmental risk. For example, one study found that early maltreatment was associated with an increase of 24% in the probability of conduct disorder among children at high genetic risk, but only 2% among children at low genetic risk (Jaffée *et al.*, 2003).

The different risk factors are not all of equal importance. In particular, the evidence suggests that parenting is the single most consistently powerful influence on the emotional and behavioural development of children. For example, one study has suggested that parenting with poor supervision and lack of warmth is responsible for 30-40% of problem behaviour in children (Patterson *et al.*, 1989). There is also evidence that the association between severe behavioural problems and variables such as large family size and parenthood may be largely mediated by parenting practices, rather than these variables acting as independent influences in their own right (Scott, 2004).

The contributory factors leading to adolescent-onset conduct disorder are rather different and the condition has been described as "the product less of individual risks than of frustrations attendant on the 'maturity gap' [individuals reaching physical maturity some years before achieving economic and social independence] and social mimicry of deviant peers" (Rutter *et al.*, 2006). Social roles are therefore much more important than in the case of early-onset conduct disorder.

Ollie

John and Anna's marriage became strained after seven years following the birth of their second child Ollie.

Their first son was very laid back, even as a baby. In contrast, Ollie was a poor sleeper right from the start and felt much trickier to manage. From the age of two and a half he had frequent and severe tantrums. John and Anna disagreed on how to deal with his behaviour, frequently undermining each other's decisions. Ollie's tantrums worsened as he grew older, affecting his performance at school and the whole family.

Anna and John were increasingly at a loss about how they should manage him. For his part, Ollie felt sad and singled out; he felt his brother got preferential treatment and was loved much more than him. This made him all the angrier and he became increasingly aggressive. On three occasions, John was forced to leave work early to help Anna contain Ollie's behaviour at home. On many occasions family outings and holidays were cancelled. Ollie often took out his anger on his more placid brother and dominated him despite his younger age. At school, teachers raised concerns about his attention levels in the classroom and his controlling and bullying behaviour with other children. He often had to be taken out of class or managed through teaching assistant support.

Both parents were highly stressed. John coped by spending more and more time at work or away from the family; Anna felt increasingly powerless, isolated and trapped and began drinking heavily on her own every evening to manage her anxiety and distress.

As Ollie approached his mid-teens he became increasingly angry at his parents' coldness – both with each other and with him. He hated his mother's drinking and the arguments which followed when she was drunk. He hated himself even more and regularly secretly self-harmed. His school performance dramatically deteriorated. He began staying away from home as often as he could. Initially, he stayed with family friends but later lied and stayed with a series of friends drinking and taking drugs.

He was expelled from school before his exams for bringing drugs on to the school campus. His parents refused to have him home and after sleeping in a young people's crisis centre he was then placed in local bed and breakfast accommodation. He has been unable to secure employment and is on medication for depression (which he frequently mixes with alcohol). He has been arrested twice for drink-fuelled assaults in public houses.

PUBLIC SECTOR BUDGETS THESE COSTS FALL ON:

PLUS SOCIETAL COSTS:

including the effects of bullying

3: Outcomes over the life course

Introduction

A very substantial body of evidence demonstrates that early-onset conduct disorder is associated with a wide range of adverse outcomes, not only in childhood but throughout the life course. This chapter provides a selective review, with information presented separately for outcomes in the early years (up to age 11), in adolescence and in adulthood.

The most persuasive evidence on the enduring consequences of childhood conduct disorder comes from longitudinal data, particularly birth cohort studies which track the experiences over the life course of samples of individuals born in the same year. This country has been a pioneer in the development and use of such studies, the longest-running relating to a nationally representative cohort of children born in 1946. Subsequent national studies cover samples of children born in 1958, 1970 and 2000 and these are supplemented by other, more local studies such as the Avon Longitudinal Study of Parents and Children (ALSPAC), which is tracking a sample of over 14,000 children born in the Avon area in the early 1990s. Similar studies in other countries, particularly New Zealand, also provide important data of particular relevance for this report.

Data from birth cohort studies can be analysed from two perspectives: looking forward from childhood to adulthood, to answer a question such as, 'what proportion of children who had early-onset conduct disorder went on to become persistent offenders in later life?'; and looking back from adulthood to childhood, to answer the related but different question, 'of all those who became persistent offenders in later life, what proportion suffered from conduct disorder when they were children?'. Both these approaches provide valid and useful information, depending on the context in which they are used.

Survey data may indicate a finding such as, 'children with early-onset conduct disorder are twice as likely as other children to leave school with no qualifications'. It does not necessarily follow that all of the difference in educational attainment can be attributed to conduct disorder. For example, children with this condition tend to come from more deprived backgrounds than other children and also to have below-average cognitive ability. Both of these factors are known to result in poorer educational outcomes, irrespective of whether or not a child also has conduct disorder. Depending on data availability, statistical analysis can be used to take into account the impact of these and other so-called confounding variables and thus isolate a 'pure' conduct disorder effect. Wherever possible, we use adjusted findings of this type.

Outcomes in the early years

A distinguishing feature of early-onset conduct disorder is not only its strong tendency to persist over the life course but also the very wide and diverse range of life domains that are adversely affected by the condition. The number of these domains is necessarily limited in early childhood, but pervasiveness of impact is still apparent, as shown by the evidence set out below in six areas: mental health; physical health; child protection; education; family relationships; and peer relationships.

Mental health

The 2004 national survey of mental health among children and young people shows that 7.7% of all children aged 5-10 suffer from some kind of diagnosable mental health condition (Green *et al.*, 2005). A prevalence of 4.9% for conduct disorder means that this is the single most important mental health condition in childhood and also the one which leads to the most referrals to specialist child and adolescent mental health services (NICE, 2013).

Clinical diagnosis of conduct disorder depends not only on the scale and severity of behavioural problems but also on evidence of significant distress and social impairment of the child. In contrast to 'internalising' problems such as

anxiety, conduct disorder may be described as an 'externalising' condition in which the child's distress takes the form of behaviours such as aggression or defiance which directly and adversely affect others. It is all too easy in this context to focus on the antisocial consequences of conduct disorder and to ignore the distress of the child which leads to these outcomes. Few would deny that a child's wellbeing and quality of life may be severely compromised by anxiety or depression; the same is also true of conduct disorder and this is a major but often forgotten cost of the condition.

The 2004 survey of childhood mental health shows that more than a third of all children with conduct disorder have another psychiatric disorder as well (Green *et al.*, 2005). Their numbers divide roughly equally between those who have conduct disorder combined with an emotional disorder (most commonly anxiety) and those who have conduct disorder along with attention deficit hyperactivity disorder (ADHD). According to NICE, these co-existing conditions are often missed when a diagnosis of conduct disorder is being made (NICE, 2013).

Physical health

A high proportion of children with conduct disorder suffer from physical and developmental problems and are also very prone to injury. It was found in the 2004 national survey that the parents of children with conduct disorder were more than three times as likely as other parents to assess their child's health as 'fair' or 'bad' (17% compared to 5%) and significantly less likely to say that it was 'very good' (50% compared to 70%) (Green *et al.*, 2005). Physical or developmental problems were reported by parents in about two-thirds of all children with conduct disorder, with particularly high rates of prevalence, in comparison with other children, for speech and language problems, coordination difficulties and bed-wetting.

A detailed study of 80 children aged 3-8 who were referred to specialist mental health services for severe behavioural problems found that during the previous 12 months a clear majority (71%) had been taken to the GP for reasons connected to their behaviour (Romeo *et al.*, 2006). Even more strikingly, as many as 40% had been admitted to hospital, for an average stay of 8 days. These children were hospitalised because their impulsive or disobedient behaviour resulted in a range of outcomes such as concussions, head injuries, scalds and burns. A further quarter of the children were taken to A&E departments for similar reasons, attending on average twice during the year.

The physical maltreatment of children by parents is an important contributory cause of conduct disorder, but it may also be a consequence, as parents resort to physical punishment as a means of dealing with bad behaviour. Such a response not only risks physical injury to the child but is also likely to reinforce behavioural problems, by conveying the message that aggression is a normal part of family relationships and an effective way of controlling others.

Child protection

Children with conduct disorder are at high risk of being placed on child protection registers and of being taken into care. For example, a detailed study of child protection registers in West Sussex found that children with conduct disorder were 7.6 times more likely than other children to be registered, even after allowing for potential confounding factors such as family socio-economic status (Spencer *et al.*, 2005). This was a much higher risk than for children with any other mental or physical health condition, including learning difficulties and speech and language disorders. A national study carried out in 2002 found that the prevalence of conduct disorder in looked-after children aged 5-10 was 36.5%, which is 7.5 times as high as the prevalence of this condition among children generally (Meltzer *et al.*, 2003a).

Child protection is most commonly needed because of parental abuse or neglect. As already noted in the case of physical maltreatment, the causal connection with conduct disorder may run in both directions and the figures given above should be interpreted in this light. In some cases parental abuse or neglect may be the cause of conduct disorder while in others it may be precipitated by it. The outcome in terms

of child protection is the same but the pathways to it may be different.

Another reason for child protection relating to conduct disorder is parental inability to cope. Some parents simply find their child's behaviour overwhelming and give up the child to be cared for by the local authority (NICE, 2013).

Education

Children with conduct disorder make additional demands on educational services from the outset. For example, the study of 3-8 year-olds by Romeo *et al.* cited above found that two-thirds of parents made extra use of nursery services because of their child's behaviour and a third of the children had been seen by an educational psychologist and were receiving special educational provision.

More generally, the 2004 national survey of child mental health found that 52% of all children with conduct disorder were reported by teachers as having special educational needs, compared with 15% of children with no disorder (Green *et al.*, 2005). The same source also found that well over half of children with conduct disorder were rated as having 'some' or 'marked' difficulty with reading, maths and spelling, which is more than twice the number among those with no disorder. And 59% of children with conduct disorder were assessed as being behind by at least a year in their overall intellectual development, against 24% of other children.

Children with conduct disorder are often disruptive in class, which hampers the learning of other children and is a major cause of stress for teachers. Bullying is covered in the section below on peer relationships.

Family relationships

Children with conduct disorder place great strain on their families, as their challenging behaviour requires constant vigilance and makes it harder for parents to carry out everyday tasks. The study by Romeo *et al.* found that this added eight hours a week to household tasks, not including the time spent on repairing damage caused by the child. It was also noted that parents' employment was sometimes disrupted by having to take time off work as a result of their child's behaviour, particularly when the child was sent home from school.

Siblings may also be affected, as a child's disruptive behaviour can be expected to have a negative effect on the whole family. The 2004 national survey found that family functioning was rated as 'unhealthy' in 42% of families containing a child with conduct disorder, compared with 17% of other families (Green *et al.*, 2005). The same survey also found, on the basis of responses to a validated mental health questionnaire (GHQ-12), that no fewer than 48% of parents of children with conduct disorder were assessed as having a severe emotional problem, against 23% of other parents. Again this finding needs to be interpreted with caution because of possible reverse causation, i.e. depression or anxiety in parents may develop as a response to a child's difficult and aggressive behaviour but may also be a prior contributory cause.

Peer relationships

Children with severe behavioural problems tend to have poor peer group relationships. For example, the 2004 national survey found that these children are around three times more likely than average to have difficulty in making friends and around eight times more likely to have difficulty in keeping them. About 20% of children with conduct disorder have no friends or only one, compared with 5% of other children.

There are also strong links with bullying, although the relationship here is quite complex, because although many bullies do suffer from serious behavioural difficulties there is also evidence that the highest rates of behavioural problems are found in so-called bully/victims, i.e. children who are simultaneously perpetrators and victims of bullying. This was one of the findings of a study by Wolke *et al.* (2000) which collected detailed information on bullying in 31 primary schools in Hertfordshire and North London. Overall, the study found that 4.3% of all children could be classified as bullies, 39.8% as victims and 10.2% as bully/

victims. Other research has demonstrated that being bullied can be highly stressful and psychologically damaging, with important long-term consequences for educational and labour market performance as well as mental health (Copeland *et al.*, 2013).

Outcomes in adolescence

As noted in Chapter 2, early-onset conduct disorder persists into adolescence and beyond in about half of all cases. At the same time the overall prevalence of conduct disorder rises from 4.9% among children aged 5-10 to 6.6% among those aged 11-16 (Green *et al.*, 2005). (There is also a change in the gender balance: in the younger age group, for every ten boys with conduct disorder there are four girls, whereas in the older age group the ratio is ten to six.) The explanation for this apparent contradiction is that the fall in numbers associated with non-persistence among children with early-onset conduct disorder is more than offset by the increase associated with the development of conduct disorder which begins in adolescence.

Many of the behaviours and associated outcomes of conduct disorder are common across the early-onset and adolescent-onset sub-types, but the causal antecedents are different, disorder of adolescent onset is much less likely to persist into adulthood and there is also some evidence that early onset is associated with greater general severity of the condition. Cross-section surveys showing the outcomes of conduct disorder in adolescence rarely distinguish between cases of early and adolescent onset and, while some use is made of such data below, preference is given wherever possible to longitudinal studies which provide a direct link between early-onset conduct disorder and outcomes in adolescence for the same individuals.

Mental health

A study based on birth cohort data has reported that 36% of all those in the sample who had severe behavioural problems at age 8 met diagnostic criteria for at least one major depressive episode between the ages of 16 and 18 (Fergusson & Lynskey, 1998). This is after adjustment for a wide range of potentially confounding variables and compares with a prevalence rate for depression of 17% among those with no conduct problems in childhood. Similarly, 26% of those with conduct disorder at age 8 were classified as having an anxiety disorder between the ages of 16 and 18, compared with 14% among those with no problems in childhood. And 11% of those with early-onset conduct disorder attempted suicide during the period from ages 16 to 18, against 2.5% among those with no early problems. All of these comparisons suggest that severe conduct problems in childhood are associated with substantially increased risks of emotional as well as behavioural problems in adolescence.

The same study reports even more pronounced risks in relation to alcohol and drug use. Thus it was found that 31% of those with early-onset conduct disorder met criteria for alcohol abuse or dependence at ages 16-18 compared with 13% among those with no childhood problems, while the corresponding figures for drug misuse or dependence (mainly cannabis) were 27% and 9%.

Physical health

Early-onset conduct disorder is associated with a wide range of risky behaviours in adolescence that may compromise physical health. Alcohol and drug misuse fall into this category and so too does smoking, with the 2004 national survey of mental health in children and young people finding that 30% of all those with conduct disorder at ages 11-16 were regular smokers, compared with 5% of those with no disorder (Green *et al.*, 2005). These figures do not, however, distinguish between cases of early onset and adolescent onset, nor do they adjust for confounding variables. Adjusted birth cohort data suggest a less dramatic but still significant difference, with one study finding that 22% of those had conduct disorder at age 8 were nicotine dependent at age 18, against 11% of those with no early behavioural problems (Fergusson & Lynskey, 1998).

Conduct disorder is also strongly implicated in sexual health risks and teenage parenthood. One study, based on birth cohort data, divided the sample into four equal-sized groups according to the severity of behavioural problems at ages 5-11 and found that those with the greatest problems in childhood were

2.2 times as likely as those with no problems to engage in under-age sex and 1.9 times as likely to engage in risky sexual behaviour, defined as having three or more partners before age 21 and "never or only sometimes" using a condom (Ramrakha *et al.*, 2007). Another study found that children with conduct disorder at ages 7-9 were subsequently nearly three times more likely become teenage parents than those with no early behavioural problems (Fergusson *et al.*, 2005).

Education

By the time they reach secondary school the behaviour of children with conduct disorder has already put them at an educational disadvantage. Academic failure then appears to contribute to worsening problems as the children reject regular activities and schoolmates and associate more often with like-minded peers (Masten *et al.*, 2005). As this example illustrates, the adverse consequences of conduct disorder may often interact with each other, with failure in one domain aggravating failure in another, leading to a cascade or downward spiral of difficulties.

School attendance among children with conduct disorder is often disrupted because of exclusions and unauthorised absences including truancy. One study found that having persistent conduct disorder increased the likelihood of being excluded from school by almost 25 times compared with no disorder, the most common reasons for exclusion being aggressive or violent behaviour, being rude or disrespectful to teachers, stealing or vandalism and general bad behaviour (Meltzer *et al.*, 2003b). Other evidence suggests that children with conduct disorder are more than three times as likely as other children to have unauthorised absences (28% against 8%), with over seven times as many being identified by teachers as having played truant (Green *et al.*, 2005).

All of these factors contribute to poorer educational attainment, with one study finding that nearly a third (31%) of all children who had conduct disorder at age 8 leave secondary school without any qualifications (Fergusson & Lynskey, 1998). This compares with 17% among those with no behavioural problems in childhood and is estimated after taking into account confounding variables such as cognitive ability and socio-economic background.

Criminality

Criminal activity is strongly age-related, rising rapidly during adolescence to a peak at age 17, when the number of offenders as a proportion of the population reaches 6% among males and 2% among females, and then falling steadily back (ONS, 2009). However, more than half of those who offend do so only once and the great bulk of crime is concentrated in the hands of a relatively small minority of persistent and prolific offenders.

The best predictor of prolific offending is the age at which a first offence is committed. For example, evidence from the Cambridge Study in Delinquent Development, which has been tracking a sample of 411 boys born in inner London in 1953, shows that among all those in the sample who committed their first offence at ages 10-13, no fewer than 91% became repeat offenders, compared with only 37% of those who first offended at ages 21-30 (Farrington *et al.*, 2006). This group of very young offenders, representing 8% of the overall sample, accounted for 39% of all crimes recorded in the study. Such a pattern of offending strongly suggests a link with early behavioural problems and this is confirmed by evidence in the Cambridge study that 90% of prolific adolescent offenders had conduct disorder at age 8 (Farrington, 1995).

Another longitudinal study has shown that, looking forward from childhood, 18% of all those in the survey who had conduct disorder at age 8 received a court conviction for any offence during the 12-month period from age 17 to 18 (Fergusson & Lynskey, 1998). This proportion is nearly seven times as high as among those who had no behavioural problems in childhood.

Outcomes in adulthood

Many of the adverse behaviours and their associated outcomes described above persist into adult life. As before, in illustrating the scale of these effects, use is made wherever possible of findings derived from longitudinal studies which provide a direct link between conduct disorder in childhood and its consequences in adulthood for the same sample of individuals.

Mental health

Uniquely among childhood mental health conditions, early-onset conduct disorder is a risk factor for all major psychiatric disorders in adults and one study has estimated that if conduct disorder in childhood could be prevented, the prevalence of mental illness among adults would be reduced by 25-50% (Kim-Cohen *et al.*, 2003).

Antisocial personality disorder (ASPD) is the condition in adults most strongly linked with conduct disorder in children. Indeed, the former is best seen as a direct continuation of the latter and in the Diagnostic and Statistical Manual of Mental Disorders produced by the American Psychiatric Association evidence of symptoms of conduct disorder in childhood is actually a requirement for diagnosis of ASPD. The conversion rate from childhood conduct disorder to adult ASPD varies from 40% to 70% depending on the study (NICE, 2013).

Risks of other mental illnesses in adulthood are less pronounced but still substantial. For example, birth cohort data suggest that males with early-onset conduct disorder are about three times as likely as those with no early problems to suffer from depression or anxiety in their late 20s and early 30s, eight times as likely to have post-traumatic stress disorder, twice as likely to be alcohol dependent, five times as likely to be drug dependent and 25 times as likely to have attempted suicide (Odgers *et al.*, 2007).

These higher rates of psychiatric morbidity carry through into greater use of mental health services. For example, in the study just described, members of the sample with early-onset conduct were four times more likely than those with no early problems to have received medication for a mental health problem and 19 times as likely to have received inpatient treatment in a psychiatric hospital (Odgers *et al.*, 2007).

Physical health

Alcohol and drug misuse along with a range of other risky behaviours are associated with impaired physical health and a commensurate increase in the use of physical health services. Again using data from the study by Odgers *et al.*, the odds of various physical health outcomes at ages 26-32 for someone with early-onset conduct disorder compared with no early problems are increased as follows: risk of cardiovascular disease 1.6 times, chronic bronchitis symptoms 3.1 times, nicotine dependency 8.7 times, gum disease 3.5 times, serious injury 2.0 times, non-sports-related injury 3.6 times and hospitalisation 3.4 times.

There are also increased risks of premature mortality. For example, a Swedish study found that children with severe behavioural problems were subsequently 5.5 times more likely to die before age 30 than those with no problems, from a range of causes including suicide, homicide, drug overdoses and accidental poisoning as well as illness (Kratzer & Hodgins, 1997). Another study, based on the 1958 British birth cohort survey, divided the sample into four equal-sized groups according to the extent of behavioural problems at ages 7 and 11 and found that the probability of death by age 46 was 2.3 times greater in the highest quartile (i.e. the 25% of the sample with the worst problems in childhood) than in the lowest quartile (Jokela *et al.*, 2009). Similar findings relating to the risk of death or disability by age 48 are reported in a study based on the Cambridge Study in Delinquent Development (Shepherd *et al.*, 2009).

Labour market outcomes

Lack of educational qualifications, continuing behavioural problems and in some cases a criminal record mean that people who had conduct disorder as children are generally at increased risk of doing badly in the labour market. For example, a number of studies show that those with childhood conduct disorder

spend more time out of work than others when in their 20s and 30s, are more likely to be dependent on welfare benefits and, when employed, are more likely to be in less-skilled and lower-paid jobs (Fergusson & Horwood, 1998). Lack of educational qualifications is probably the critical mediating variable in explaining these findings. For example, at the end of 2009, only 56% of people with no or low qualifications were in paid work compared with 77% of people with all other qualifications (Barrett, 2010).

One contrary result is reported in a study based on the 1970 British birth cohort study which finds that severe behavioural problems at age 10 are associated for males, though not females, with higher than average earnings at age 30 (Knapp *et al.*, 2011). As the authors note, this is an unexpected finding and one which has not been reported elsewhere in the research literature. A possible explanation is that elements of antisocial behaviour such as risk-taking and aggression may be adaptive in some workplace contexts. Further research is needed to test this hypothesis and for the moment the consensus in the literature is that the labour market consequences of conduct disorder in childhood are very largely negative.

Homelessness

Various studies have shown that people with a history of severe behavioural problems are at much higher risk of homelessness than the general population. One found that 20% of all men with early-onset conduct disorder had some experience of homelessness (including being taken in by others) between the ages of 26 and 32, which represented a ten-fold increase in the odds of homelessness compared with men who had no early history of behavioural problems (Odgers *et al.*, 2007).

Crime

The strong links between conduct disorder and criminality noted in adolescence are largely maintained when individuals are in their 20s and 30s. Thus it has been found in one study that people who had conduct order at ages 7-9 were 3.2 times more likely than those with no early problems to engage in property-related offending at ages 21-25, 4.1 times more likely to engage in violent offending and no less than 19 times more likely to have served a prison sentence (Fergusson *et al.*, 2005). Another study based on birth cohort data found that the 10% of the males in the sample who had severe behavioural problems in childhood accounted for 72% of the time spent in prison up to age 32 by all members of the sample combined (Odgers *et al.*, 2007).

Based on such findings, it has been estimated that 30.0% of all crime in this country is committed by people who had conduct disorder as children (Centre for Mental Health, 2009). Taking into account the independent effects on offending of differences in cognitive ability and socio-economic background, the proportion of crime attributable to conduct disorder is estimated at 21.7%.

Personal relationships

The psychosocial functioning of adults who had conduct disorder as children is generally poor and this carries though into the sphere of personal relationships. In particular, intimate relationships are much more likely than average to be short-lived and characterised by abuse and violence. One study found that adults who had conduct disorder at ages 7-9 were twice as likely as those with no early problems to have multiple (10+) sexual partners at ages 21-25 and more than three times as likely to have been involved in inter-partner violence in the 12 months up to age 25 (Fergusson *et al.*, 2005).

Another study found that at age 32 men with conduct disorder since childhood were ten times more likely than those with no early problems to be inflicting controlling abuse on their partners (humiliating, restricting, intimidating or stalking) and, relative to their numbers in the sample, these men accounted for six times their share of convictions for rape and violence against women (Moffitt *et al.*, 2002).

According to another study, girls with conduct disorder were, at 21 years of age, three times more likely to have been victims of partner violence and four times more likely to have been in a mutually violent relationship in the past year than their peers (Bardone *et al.*, 1996).

Inter-generational effects

There is a good deal of evidence to suggest that children with conduct disorder are likely in their turn to become the parents of children who themselves display the same severe behavioural problems (see for example Jaffée *et al.*, 2006, and Pajer, 1998). This continuity across the generations reflects a number of interacting influences.

First, as already seen, there is an important genetic component in the development of early-onset conduct disorder. Second, there is evidence of assortative mating between people with behavioural problems, which compounds the genetic risk and also exposes children to adverse influences in the home environment such as relationship violence (Krueger *et al.*, 1998). Third, there is evidence that parents with a history of behavioural problems are more hostile and harsh in their parenting styles than other parents (Bosquet & Egeland, 2000) and also more likely to abuse their own children (Verona & Sachs-Ericsson, 2005). Both of these are major risk factors for the early development of conduct disorder. Finally, parents with behavioural problems are likely to expose their children to a range of wider environmental factors that are also implicated in the development of early-onset conduct disorder such as low socio-economic position and living in deprived neighbourhoods.

It was noted in Chapter 2 that the risk factors for conduct disorder tend to have a cumulative effect, with the likelihood of disorder rising progressively as an individual is subject to an increasing number of adverse influences in early life. The children of parents who themselves have a history of severe behavioural problems are among those most likely to face such multiple risks.

Tommy

Lisa had three children. Her second child, Tommy, was born during a violent break-up from her partner.

Tommy was always challenging to manage from an early age. He was aggressive with his siblings, often biting them and making them cry. He often repeatedly banged his head against the wall of his room when in a tantrum.

At pre-school, his nursery worker regularly called Lisa in at the end of the school day to highlight difficulties with Tommy's behaviour. He was aggressive, wouldn't share, spat at other children and found it difficult to settle. At home, Lisa was becoming increasingly stressed. She had given up part-time work and suffered regular panic attacks. She became harsher in her disciplining of Tommy although this just made him more defiant. Tommy was constantly on the go; he ended up in A&E after hurling himself downstairs during a tantrum. On this occasion, all children were placed on the at-risk register due to evidence of bites and bruising and because of general concern over the children's welfare.

During primary school, he was difficult to teach, needing regular input from a teaching assistant to help focus his attention. His understanding of tasks was poor. He had few friends and was often both bullied and removed from class. Eventually, he received a statement of educational needs although later this was not transferred to his secondary school.

During secondary school, he found that he was able to gain friends and feel good about himself through being the 'class clown' and through dominating others. He and a small group of friends systematically targeted other pupils and used physical and psychological force to extract money which was spent on cannabis and other drugs.

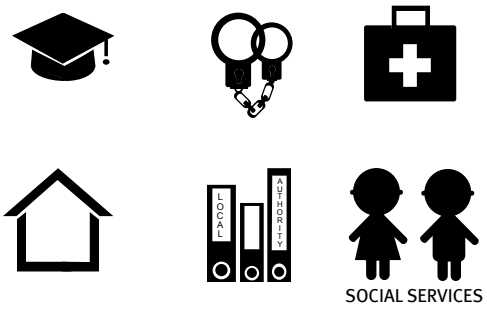
By the age of 15 he had been temporarily excluded twice for violence against teachers and other pupils. He attended the local Pupil Referral Unit but eventually stopped attending just before he was due to sit his exams. He gained no qualifications. He was very aggressive with his mother, sleeping away from home and mixing with older friends from his estate. The group regularly caused damage to local shops, sabotaged lifts and left graffiti on the stairwells of local flats. He had frequent brushes with local housing officers and the police. Some of his friends were known to be involved in local drug dealing. His mother repeatedly asked for help from social services but the children had long since been removed from child protection registers and Tommy was considered insufficiently at risk to be in need of support from social services.

By the age of 16, he had cautions for offences of criminal damage and theft. By 18, he had children with two separate partners. These relationships ended following violence. His sleeping patterns were out of synch and he was routinely using cocaine and alcohol. He had been unable to hold down a job, leaving after only a few weeks. He was regularly in fights in local pubs ending up either in A&E departments or in police custody. He confided to one health worker that he 'felt better' when he felt physical pain.

Eventually he was arrested for an unprovoked and violent attack on someone in a pub with a broken glass. He was sentenced to 18 months in youth custody transferring to adult prison at 18. Health screening picked up signs of depression.

After release from prison, he lived in a shabby bedsit and was unable to get work. He became increasingly reliant on alcohol and drugs and his pattern of violence continued with three further returns to prison. A mugging of a woman at a cashpoint to get money for drugs resulted in a further lengthy period of imprisonment.

PUBLIC SECTOR BUDGETS THESE COSTS FALL ON:



SOCIAL SERVICES

PLUS SOCIETAL COSTS:

including the effects of bullying

4: The costs of behavioural problems

Introduction

The evidence summarised above demonstrates beyond doubt that the consequences of early-onset conduct disorder are both wide-ranging and long-lasting. One way of highlighting the overall scale of these adverse outcomes is to express as many of them as possible in monetary terms and then combine these into a single estimate of lifetime costs. It should already be apparent that any such estimate is likely to be extremely high, whether measured from the perspective of the individuals who suffer from conduct disorder or from wider perspectives such as the impact on the Exchequer or on society as a whole. Various attempts have been made to estimate the long-term costs of conduct disorder, usually within specific age ranges rather than across the full life course, but all of these are likely to under-estimate the true costs by a substantial margin. This is for a variety of reasons.

First, many of the adverse outcomes of conduct disorder are difficult to quantify, let alone value in monetary terms. A specific example might be classroom disruption in schools and its impact on teachers and other pupils, but this is merely one instance among many of a wide range of antisocial behaviours which in one way or another cause distress or unhappiness to others. And, as already noted, individuals with conduct disorder may themselves suffer significant distress because of the consequences of their behaviour, such as poor personal relationships and social isolation. These wide-ranging impacts on the quality of life are inherently hard to measure and value.

Second, there are some effects of antisocial behaviour on third parties which can be quantified but which are rarely if ever included in the estimated costs of conduct disorder. For example, bullying is a common behaviour by people with severe conduct problems, particularly – but not only – in childhood. Evidence from longitudinal studies shows that being bullied can have serious long-term economic consequences, with one study estimating that, after taking into account a wide range of other influences, the lifetime earnings of a victim of serious bullying are reduced by around £50,000 on average (Hummel *et al.*, 2009, drawing on data in Brown & Taylor, 2008). This is clearly an attributable cost of conduct disorder but not one which features in any published estimate of overall costs. Moreover, the figure of £50,000 relates to lost earnings for a single victim of bullying and, as the evidence shows, there are many more victims of bullying than there are perpetrators.

Third, most estimates of the costs of conduct disorder are based on surveys in which the numbers of people with this condition are relatively small. This raises the possibility that outcomes of low probability but very high unit cost may be altogether missed. For example, children with conduct disorder are at considerably greater risk of being taken into care than other children, but in absolute terms the risk is still relatively small. On the other hand, each single instance is extremely expensive, with the cost of a child looked after in a local authority care home being estimated at over £150,000 a year (Curtis, 2012).

Finally, most estimates of the costs of conduct disorder are based on 'bottom-up' methods of calculation which use individual-level data collected in surveys to derive an overall national average or total. For example, a recent study of the economic impact of childhood psychiatric disorders on public services has estimated that the overall national cost of children's mental health services amounts to around £64 million a year in 2008 prices (Snell *et al.*, 2013). This is calculated by combining survey data on service use (e.g. numbers of psychiatric inpatients stays) with independently estimated unit costs for each type of service and then grossing up to a national total. However, a 'top-down' figure based on budgetary and accounting data is published by the Department of Health and this shows that aggregate spending on children's mental health services in 2008/09 was £680 million (DH, 2013). In other words, the 'bottom-up' approach produces an estimate of NHS

spending on children's mental services which is less than a tenth of a known national total.

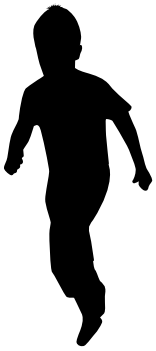
Various reasons may explain such discrepancies. For example, there may be differences in the coverage of services in the two estimates. Information on service use collected in surveys often depends on the ability of respondents to recall past events, which tends to result in under-estimation. And the estimates of unit costs used in 'bottom-up' calculations may not always capture all relevant categories of expenditure. Whatever the reasons in any particular case, wider evidence suggests that 'bottom-up' calculations are always likely to result in the under-estimation of costs.

Costs in childhood

Three British studies provide estimates of the costs of conduct disorder in childhood (Knapp *et al.*, 1999; Romeo *et al.*, 2006; and Snell *et al.*, 2013). All of these give figures for the costs borne by public services (mainly health, social services and education), while the first two also include estimates of the quantifiable costs falling on families such as time off work. For the purposes of comparison, costs in all three studies have been converted to a common 2012/13 price base, with costs from earlier years being assumed to rise in line with general inflation. (This is a conservative assumption, because there is a well-established tendency for health and other public service costs to increase at a somewhat faster rate over time than prices generally.)

The two studies giving figures for costs falling on families come up with broadly similar estimates, each suggesting that on average any family which includes a child with conduct disorder faces extra costs, including lost earnings, amounting to around £6,500 a year in 2012/13 prices. There is, however, much less agreement on public service costs, as two of the studies put these at around £2,000 a year while the other gives an estimate of over £11,000 a year. The latter is based on a very small sample and the cases it includes may also be of above-average severity and therefore cost. On the other hand, the other two studies include the one by Snell *et al.* which, as noted above, appears to under-estimate NHS costs by a very large margin. A simple average of the three studies suggests that the annual cost of conduct disorder which falls on public services is around £5,000 per child.

All three studies agree that the largest share of public service costs for children with conduct disorder is borne by the education sector. Again taking a simple average, this comes out at around £3,000 a year per child.



£3000 THE ANNUAL COST OF CONDUCT DISORDER TO EDUCATION PER CHILD *

*ESTIMATE OF THREE STUDIES

This is over and above the normal cost of schooling and covers both the costs associated with special educational needs and extra costs falling on frontline education services (e.g. extra help provided in the school by teachers and teaching assistants). Averaged over the three studies, costs falling on the NHS are around £1,400 a year and on social services around £600 a year.

£5000 THE ANNUAL COST OF CONDUCT DISORDER TO PUBLIC SERVICES PER CHILD *

*ESTIMATE OF THREE STUDIES

£1400 THE ANNUAL COST OF CONDUCT DISORDER TO THE NHS PER CHILD *

*ESTIMATE OF THREE STUDIES

Costs in adolescence and early adulthood

The most detailed estimates of the costs of conduct disorder in adolescence and early adulthood are those given in a study by Scott *et al.* (2001), which provides figures for public sector costs incurred by a sample of children followed up between ages 10 and 28. The sample is divided into three groups, covering those with conduct disorder at age 10, those with sub-threshold conduct problems at the same age and those with no problems.

Measured in 2012/13 prices, the average total cost of public services used by individuals over the period from ages 10 to 28 was as follows:

- individuals with conduct disorder at age 10: £95,926 per head
- those with sub-threshold conduct problems at age 10: £33,324 per head
- those with no problems at age 10: £10,170 per head.

Measured on a net basis, i.e. over and above the costs incurred by someone with no conduct problems at age 10, the aggregate public sector cost of conduct disorder up to age 28 works out at £85,756 per individual, or £4,764 a year, while the equivalent cost of sub-threshold conduct problems is £23,514, or £1,286 a year. Disaggregation of the total for conduct disorder shows that 67% of the extra costs fall on the criminal justice system, 18% on the education sector and 13% on health and social services.

A similar study in the US has estimated the costs of conduct disorder over a shorter time period, from ages 12 to 18 (Foster & Jones, 2005). Again using a 'no problems' baseline, this finds that the public sector costs of conduct disorder in adolescence work out at £3,369 a year, measured in 2012/13 UK prices. This is not dissimilar to the equivalent figure given in Scott *et al.*, but the breakdown of the total is different, with the US study showing 24% of the extra costs falling on the criminal justice system, 22% on the education sector and as much as 54% on health services.

Costs of crime

The study by Scott *et al.* suggests that the criminal justice system in this country incurs costs of over £3,000 a year as a result of crimes committed during adolescence and early adulthood by each individual who had conduct disorder at age 10. The high cost of adolescent crime is also highlighted in a recent report by the National Audit Office, on the cost to the criminal justice system of a cohort of young offenders (NAO, 2011). This examined 83,000 young offenders who committed their first proven offence in 2000 and analysed the subsequent offending behaviour of this cohort for the period 2000-2009. It found that on average each young offender cost £8,000 a year to the criminal justice system and that each of the most costly 10% cost £29,000 a year. As noted earlier, there is evidence that around 90% of all prolific adolescent offenders, i.e. those in the most costly 10%, had conduct disorder as children.

High as these figures are, they represent only a fraction of the overall costs of crime, as they make no allowance for costs falling outside the criminal justice system. Comprehensive estimates of the costs of crime, both in total and by type of offence, were first published by the Home Office in 2000 (Brand & Price, 2000) and partially updated five years later (Dubourg *et al.*, 2005). These show, for example, that the total cost of crime in England and Wales in 1999/2000 was around £60 billion. Only about 20% of the aggregate cost was incurred by the criminal justice system, with most of the remainder falling on the victims of crime, including the value of stolen or damaged property, losses in earnings resulting from crime-related injuries and an imputed value of the emotional and physical impact of crime on victims. The estimate of over £3,000 a year in Scott *et al.* for costs falling on the criminal justice system should therefore be grossed up to over £15,000 a year for the societal cost of crime committed up to age 28 by an average individual who had conduct disorder at age 10.

£15,000

THE ANNUAL SOCIETAL COST OF CRIME COMMITTED UP TO AGE 28*

*BY AN INDIVIDUAL WHO HAD CONDUCT DISORDER AGE 10

Taking this approach a stage further, a US study has sought to measure the lifetime costs of crime associated with prolific offending (Cohen & Piquero, 2009, updating Cohen, 1998). Prolific offenders in this study are defined as those who commit six or more offences over the course of a criminal career. Longitudinal evidence in the US suggests that this group represents about 15% of all offenders and is responsible for half of all recorded crime. Crime costs include criminal justice service costs, costs to victims and lost productivity of offenders who are imprisoned.

Measured on this basis, it is estimated that total crime-related costs for a single prolific offender are in the range $2.1-$3.7 million (2007 dollars) when discounted back to birth. This is equivalent to about 45-80 times annual GDP per head in the US. Applying the same multiples to UK GDP per head, it may be calculated that in this country the lifetime costs of crime committed by a single prolific offender are in the range £1.1-£1.9 million.

The average lifetime cost imposed on society by a prolific offender is not of course the same as the average lifetime cost of crime committed by every individual with early-onset conduct disorder. Not all children with serious conduct problems go on to offend and, among those who do, only a minority become prolific offenders. For example, using imprisonment as a proxy for prolific offending, birth cohort data show that among all people with conduct disorder at ages 7-9 only 14% were imprisoned at any time between ages 17 and 25, the peak time for criminal activity (Fergusson *et al.*, 2005). On the other hand, looking back rather than forward, it remains the case that almost all prolific offenders had conduct disorder in early life.

Lifetime costs

A broad-based estimate of the lifetime costs of conduct disorder, covering not only crime but also adverse outcomes in adult life relating to mental illness, drug misuse, smoking, suicide and unemployment, is given in Friedli & Parsonage (2007). This combines information on adult outcomes derived from birth cohort data with costings based on relevant sources such as the Home Office figures for the costs of crime. The study estimates that the overall lifetime cost of the identified adverse outcomes among people who had early-onset conduct disorder is around £260,000 per case in 2012/13 prices, while the lifetime cost among those who had sub-threshold behavioural problems is put at around £85,000 per case. In each case the point of comparison is given by the outcomes in adult life experienced by people who had no conduct problems in childhood. Of the overall lifetime costs of conduct disorder, 71% are attributable to costs relating to crime, 13% to costs associated with adult mental illness and 7% to the costs of adverse labour market outcomes.

Each one-year cohort of children in England between the ages of 5 and 10 includes about 600,000 individuals, of whom around 30,000 meet the criteria for a diagnosis of conduct disorder. If the lifetime cost of conduct disorder is £260,000 per case, then the aggregate cost of this condition for a single one-year cohort is nearly £8 billion. Sizeable as this figure is, it is almost certainly an under-estimate.

Alyssa

Alyssa's mother was a teenage parent and experienced severe postnatal depression after giving birth to Alyssa and her twin sister.

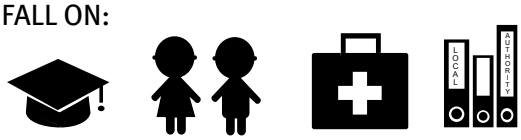
This depression was not picked up until after her third pregnancy. She had also been in a violent relationship which resulted in her children being placed on the child protection register for three years. Alyssa had always been the stronger more aggressive of the twin girls. She was considered 'a handful' by her mother from an early age; her mother struggled to cope on her own. During primary school, Alyssa was sparky and quick to learn but was often in trouble for her behaviour and for bullying other girls.

By the age of 12, Alyssa's mother was unable to cope with her daughter's behaviour at home or at school. She decided her daughter needed a fresh start and arranged for Alyssa to live with her natural father. His working patterns meant that she was poorly supervised after school. She began spending more time with older friends and also began self-harming. Within months the placement with her father broke down, with Alyssa calling the police after coming to blows with her father and new stepmother. She returned to her mother and sister but struggled to settle back into school and continued to have frequent rows at home. Her school performance was poor with ongoing complaints from the school to Alyssa's mother both about her behaviour and about bullying.

Alyssa's mother was told that she was regularly mixing with older men in the town. By the age of 14 she was staying away from home; her mother felt unable to control her behaviour and her mother's mental health also spiralled out of control – she feared that Alyssa was being given money, drugs and alcohol for sex and social services subsequently took her into voluntary care placing her in a children's home. Within a month she had run away, sleeping on friends' sofas and then eventually returning home. She continued to misuse substances. She had regular STD infections with frequent appointments with the local GUM clinic. She continued self-harming, ending up in A&E on two occasions after overdosing on paracetemol and alcohol.

By 15, she was pregnant but would not disclose the father's name. She moved to local authority supported housing for teenage parents, continuing her schooling but passing only two of her GCSEs. By the age of 19 she had moved in with a partner. This was a violent relationship and she now had three children under the age of 5 – all of whom had themselves been placed on the child protection register. She now regularly had cycles of anxiety and felt unable to leave the house. She continued to experience regular cycles of depression requiring intermittent treatment and interfering with her ability to sustain employment. Her own children struggled in school and two were statemented due to attentional and behavioural difficulties.

PUBLIC SECTOR BUDGETS THESE COSTS FALL ON:



SOCIAL SERVICES

PLUS SOCIETAL COSTS:

including the effects of bullying

5: The effectiveness of parenting programmes

Introduction

This chapter provides a brief review of published evidence on the effectiveness of parenting interventions aimed at preventing or treating early-onset conduct disorder. The main focus is on the impact of parent training programmes which support families with children aged 3-11 who are showing early signs of severe behavioural problems. However, there is also reference to Family Nurse Partnerships, an intervention increasingly available in this country which provides earlier and longer-term support to vulnerable teenage mothers, both during pregnancy and for up to two years afterwards.

Parent training programmes

As noted in Chapter 2, quality of parenting is a critical determinant of child outcomes. Starting from this premise, a number of behavioural training programmes have been developed which aim to improve the quality of the parent-child relationship and the skills of parents in managing child behaviour. Well-known examples include the Incredible Years Programme and the Positive Parenting Programme (Triple P). Although details vary, effective programmes tend to share the same general approach. For example, rather than simply prescribing techniques, they emphasise principles of good parenting, such as the importance of parent-child interaction, consistency and positive reinforcement; they encourage parents to use active problem-solving to apply these principles to their own situation; and they focus on behaviour change. Programmes are generally delivered in group settings, involve eight to eighteen sessions of around two hours each and are delivered by trained facilitators, with some potential to provide programmes on a one-to-one basis for hard-to-reach parents.

Behavioural parent training has been described as "the most extensively studied treatment for children's conduct problems" (Scott, 2008). The evidence base includes well over a hundred randomised controlled trials (RCTs), with the findings summarised and assessed in a number of systematic reviews and meta-analyses, including a Cochrane review (Furlong *et al.*, 2012) and a review by NICE (2013). All of these reviews agree that parenting programmes are an effective intervention for childhood conduct problems. Key findings from the research literature are summarised below.

Research findings

First, there is good evidence that parenting programmes significantly improve the quality of parenting. For example, the Cochrane review referenced above found the following effect sizes for the impact of parenting programmes on positive and negative parenting practices (the effect size is a widely used method of quantifying the overall effectiveness of an intervention and as a rough rule of thumb an effect size of around 0.2 indicates a small impact, one of around 0.5 a moderate impact and one of around 0.8 a large impact):

- positive parenting practices (parent reports) 0.53
- positive parenting practices (independent reports) 0.47
- negative parenting practices (parent reports) 0.77
- negative parenting practices (independent reports) 0.42.

There is also some evidence that parenting interventions reduce child maltreatment (Lundahl *et al.*, 2006).

Second, by improving the quality of parenting, parent training programmes are also effective in reducing child problem behaviour. Overall, around two-thirds of children with conduct disorder show some improvement in their

behaviour following a parenting programme and the majority of these move below the clinical threshold for a mental health diagnosis (NICE, 2013). Effect sizes for the overall impact on child problem behaviour are estimated in the Cochrane review at 0.53 based on parent reports and 0.44 based on independent reports (Furlong *et al.*, 2012). Similar results are reported in other studies. For example, a systematic review of 57 RCTs carried out by Dretzke *et al.* (2009) shows an effect size for child behaviour change of 0.67 based on parent reports. The evidence also suggests that the key factor in promoting better child behaviour is an improvement in positive parenting rather than a reduction in negative parenting (Gardner *et al.*, 2010).

Third, there is evidence that parenting programmes improve behaviour among the siblings of children with conduct disorder. For example, an RCT to evaluate the effectiveness of the Incredible Years programme for parents with pre-school children with serious behavioural problems who were attending Sure Start centres in North Wales found that the impact on the behaviour of siblings, while smaller than among the children who were the main focus of the intervention, was still big enough to result in an effect size in the moderate to large range: 0.39 on one measure of behaviour and 0.69 on another (Hutchings *et al.*, 2007).

And fourth, there is also good evidence to show that participation in a parenting programme improves the mental health and wellbeing of the parents themselves as well as of their children. For example, a meta-analysis of the effectiveness of parenting programmes in improving maternal psychosocial health combined the results from 15 RCTs which included relevant data and found statistically significant improvements from the intervention in the following areas: depression (effect size 0.3); anxiety or stress (effect size 0.5); self-esteem (effect size 0.4); and relationship with partner (effect size 0.4) (Barlow *et al.*, 2002). The Cochrane review found an effect size of 0.36 for the overall impact of parenting programmes on parental mental health.

Issues

The evidence summarised above indicates that parenting programmes generate multiple positive outcomes. An overall assessment of the effectiveness of these programmes should, however, also take into account the following issues which have been raised in the research literature.

First, many studies of the effectiveness of parenting interventions have been carried out under research conditions and this raises the question of whether the programmes are equally successful in 'real world' settings. On the whole the evidence suggests a positive conclusion. For example, the Cochrane review finds no statistically significant differences in outcomes according to the setting in which trials take place. Perhaps the best example in this country of a study undertaken in a 'real world' service setting is the North Wales Sure Start trial mentioned above, which resulted in particularly large improvements over a range of outcomes, including effect sizes of 0.9 for the impact of parenting training on child conduct problems, 0.7 for the impact on parenting stress and 0.5 for the impact on parental depression (Hutchings *et al.*, 2007).

A second important question is whether the effectiveness of parenting interventions is broadly the same across different types of families and children, or is it the case that some groups do better than others. Early studies appeared to find some evidence of group-related differences in outcomes, and in particular that more disadvantaged families (e.g. single parents, parents on very low incomes or those with depression) tended to do worse. Some trials also found that severity of child problem behaviour was associated with poorer outcomes. More recent evidence and analysis has largely overturned these findings, leading to the more optimistic conclusion that parenting programmes work equally well across

a wide range of family and child risk variables (Gardner *et al.*, 2010). The Cochrane review finds no statistically significant differences in outcomes in relation to either the severity of childhood conduct problems or family socio-economic status (Furlong *et al.*, 2012). There is also evidence that parenting programmes work equally well for different ethnic groups (Stewart-Brown & Schrader-Mcmillan, 2011).

A third question concerns the extent to which the benefits of parenting interventions, particularly improved child behaviour, persist over time. This is an under-researched area, as few studies have collected follow-up data on outcomes for periods longer than three or six months. Where longer-term information has been collected, this provides some evidence that treatment gains are maintained at 12 and 18 months (Bywater *et al.*, 2009), at 4 years (Muntz *et al.*, 2004) and at 8-12 years (Webster-Stratton *et al.*, 2011), but as noted in the Cochrane review other studies have found poor maintenance of gains at 12-month follow-up (Furlong *et al.*, 2012).

A general argument supporting the persistence of treatment gains is that effective intervention may set up a self-reinforcing cycle of change that helps to promote and sustain improved behaviour over time. This is in effect a reversal of the argument noted in Chapter 3, that in the absence of intervention conduct disorder tends to persist over time because of negative interactions, with failure in one domain aggravating failure in another, leading to a cascade or downward spiral of difficulties.

Change in the parent-child relationship as a result of parent training provides the possibility of setting up a cycle going in the opposite direction, starting from the fact that this relationship is always bi-directional; in other words, parenting style not only influences child behaviour but may also be influenced by it. Thus an improvement in parenting style evokes better behaviour by the child, which in turn encourages the parent to maintain the improved parenting style, further reinforcing the child's response and so on in a positive feedback loop. Improved child behaviour may also set up positive interactions in other settings, for example at school or in peer relationships. Plausible as these arguments may be, further research is needed for empirical validation of their scale and impact on the maintenance of treatment gains.

A fourth question is whether parenting interventions can be taken to scale, so that they become embedded in service systems and thus able to support a large proportion of all the families who might benefit. This is a major challenge, but some positive evidence comes from the US Triple P System Population Trial, which sought to reduce maltreatment in a whole population of children aged 0-8 in South Carolina (Prinz *et al.*, 2009). (The Triple P system has five levels of intensity, with level four corresponding to group parent training programmes; level one consists of a media campaign, levels two and three cover interventions in primary care for children with mild behavioural problems and level five corresponds to intensive individual parent training for families of children with the most severe problems.)

In this trial nine counties in the state were randomly assigned to dissemination of the Triple P parenting system while nine matched comparison counties received services as usual. Outcomes after two years measured by county-level indicators showed a large impact of the intervention, as shown by the following effect sizes:

- substantiated cases of child maltreatment 1.09
- out-of-home placements 1.22
- child maltreatment injuries requiring hospital treatment 1.14.

In a community with 100,000 children aged 0-8, these effects would translate into 688 fewer cases of child maltreatment, 240 fewer out-of-home placements and 60 fewer children requiring hospital treatment. In addition to these gains relating to maltreatment, there would also be wider benefits from reduced incidence and severity of childhood conduct disorder, not quantified in this study.

Finally, the evidence on parenting interventions highlights the major importance of effective implementation as a determinant of programme success, including such factors as therapist adherence to treatment protocols, quality of therapist training, practical delivery (e.g. providing transport and crèches for parents attending training programmes), ongoing supervision and organisational support. The Cochrane review shows the following effect sizes for interventions with high and low programme fidelity, in the table below. As the table shows, poor implementation reduces the impact of parenting programmes by half or more.

Effect sizes for interventions

	high fidelity	low fidelity
child conduct problems (parent reports)	0.58	0.28
child conduct problems (independent reports)	0.53	0.22
positive parenting practices (parent reports)	0.61	0.37
negative parenting practices (independent reports)	0.50	0.04

Family Nurse Partnerships

The Family Nurse Partnership is a preventive programme for vulnerable first-time young mothers, based on home visiting by trained nurses from early pregnancy until the child is two. The support provided by nurses covers wide range of issues, including parenting and child behaviour. Initially developed in the US over 30 years ago, the programme was introduced in this country in 2007 on a pilot basis and it is now planned to increase the overall number of families in the programme at any one time to 13,000 by 2015.

Three large randomised controlled trials have tested the programme in the US and these have demonstrated a range of benefits for both mothers and children. Importantly, these studies have tracked – and indeed continue to track – outcomes continuously over time and published results are available for the impact of the programme on a wide range of measures throughout childhood and adolescence for the children included in the trials.

Benefits for the children include the following (DH, 2011):

- 48% reduction in verified cases of child abuse and neglect by age 15;
- 50% reduction in language delay at 21 months;
- 67% reduction in behavioural and emotional problems at age 6;
- 28% reduction in anxiety and depression at age 12;
- 67% reduction in use of cigarettes, alcohol and marijuana at age 12;
- 59% reduction in arrests by age 15.

The programme also generates a number of benefits for mothers in the programme, including increased employment, reduced welfare dependency and reduced offending (61% fewer arrests and 72% fewer convictions among mothers by the time children were aged 15).

Liah

Liah had a difficult childhood. She had a distant relationship with her own mother who was strict and emotionally unreliable. She lived on the streets at 16, had a history of substance misuse during this time and was put on medication for anxiety during her teens.

By the age of 21, things had stabilised a little. She lived with her partner, had her own tenancy and had a 4 year old son. She was also pregnant with her second child.

Here relationship was volatile, characterised by anger and regular violent outbursts. The police had regularly attended her flat following concerns about domestic violence. Her son had been placed on a child protection plan as a result of concerns about family violence and his safety. His behaviour was also getting more and more difficult for Liah to manage. He had frequent tantrums and staff regularly called her in to complain about his behaviour at nursery. Social workers told Liah that her new-born son would also go straight onto a child protection plan at birth.

Liah was persuaded by her social worker to attend a local parenting support group. Although initially sceptical about attendance, she very quickly settled in and was exceptionally positive about what she learnt both from the group facilitators and from other parents. She described picking up very practical skills which quickly made a difference to her son's behaviour. The group also made her reflect on other aspects of her life including her own parenting and her volatile relationship. Liah's mental health and stress levels also improved greatly to the extent that she approached her GP to plan coming off her medication.

Liah learnt quickly that she needed to be consistent with the techniques she had learnt, otherwise she would almost immediately witness a deterioration in her son's behaviour. But this was getting easier and the strategies were becoming second nature to her now. After three months, both children were removed from child protection plans thanks to the progress made by the family. Liah described feeling so much more confident and was considering returning to college with a view to accessing employment.

PUBLIC SECTOR BUDGETS THESE COSTS FALL ON:

6: The costs and benefits of intervention

Introduction

This chapter seeks to address two main questions: first, are parenting interventions a good use of scarce resources; and second, do they pay for themselves through future savings in public spending? Both these questions involve weighing up costs and benefits, in the first case from the perspective of society as a whole and in the second from the narrower perspective of the public sector.

A positive answer to the first question is – or ought to be – a necessary condition for going ahead with any programme in the public sector, but it is not always a sufficient condition. Particularly at a time when public funds are under severe restraint, decision makers will also be very concerned with affordability. This raises particular difficulties with the funding of early intervention for children with severe behavioural problems, partly because any subsequent savings in public spending may accrue over long periods of time and partly because these savings are also distributed across a wide range of different agencies in the public sector. Who pays, who benefits and when? All of these are crucial questions for decision makers.

Evidence with which to answer these questions is in relatively short supply, as few of the studies of effectiveness have collected much economic data, particularly in relation to outcomes. The lack of long-term follow-up data in the effectiveness literature is also a major constraint. To get round these problems, various studies have made use of an economic modelling approach in which quantitative data from effectiveness trials are incorporated into intervention-specific models and combined with economic information from other sources to produce estimates of costs and benefits measured in monetary terms.

In some cases this is very straightforward. For example, effectiveness studies often include some data on the use of health services before and after an intervention, e.g. numbers of GP consultations or outpatient attendances. Such information can readily be translated into monetary equivalents using published national data on unit costs.

In other cases the modelling requires additional steps. For example, children with conduct disorder are more likely than others to leave school with no educational qualifications. In the absence of detailed data on the individuals in an effectiveness study, the impact on their future earnings can be simulated using information taken from wider studies of the long-term relationship between educational qualifications, employment and pay. As this example shows, the modelling approach necessarily involves the use of some assumptions in the estimation process, in this case that a historical relationship between education and earnings for the general population will continue into the future and can be applied without adjustment to a particular sub-group. Results should be therefore treated with a degree of caution.

A more important limitation in the economic literature on early intervention is the almost invariable omission of major types of benefit in value-for-money assessments. Ideally, cost-benefit analyses should seek to incorporate all the effects of an intervention, where necessary imputing monetary values to items which are not conventionally traded or included in GDP. Most obviously, in the area of mental health, this means including an imputed monetary value for the benefits of improved mental health in terms of its impact on wellbeing and quality of life. Such benefits are the fundamental justification for service provision and yet they find no place in the economic literature on early intervention.

Also omitted in all studies are a range of third-party effects such as the impact of parenting interventions on the mental health and quality of life of parents and siblings and on the wellbeing of others such as the victims of bullying and children in the next generation. In some cases, even when relevant economic information is available, such as the impact of bullying on the future earnings of victims, this too is omitted.

For just the same reasons as the costs of behavioural problems are invariably understated, so too are the benefits of effective early intervention. None of this is to deny the difficulties of monetary valuation in the areas just described. It is, however, to flag up a warning that the findings of cost-benefit studies reported below need very careful interpretation. In particular, a finding that costs exceed measured benefits in any particular case does not necessarily mean that the intervention in question is poor value for money. Unless the full scale of any improvements in mental health and quality of life are also taken into account, no such conclusion can be drawn. In general, society spends money on health care, not because this might save money elsewhere or later on, but because better health is a good in its own right - and one which is valued very highly. This applies as much to mental health as to physical health.

Threshold analysis

The findings of health economic studies can be presented in a number of ways. The most usual is to compare the total benefits of an intervention, discounting those accruing in the future back to a present value, with programme costs, to give a measure of net benefits (B-C) or a benefit/cost ratio (B/C). Any intervention showing positive net benefits or a benefit/cost ratio greater than one may be judged good value for money.

An alternative approach is threshold analysis, which explores such issues as the minimum level of effectiveness that is needed for a programme to pass a value for money test. This approach has its limitations but can be helpful when the available data on outcomes are limited or uncertain.

To illustrate, appropriate information in effectiveness studies combined with data on programme costs can be used to calculate the average cost of bringing a child with conduct disorder below a clinical cut-off or threshold as a result of a parenting intervention. Two economic studies included in the Cochrane review have been analysed in this way and come up with virtually identical results, with the cost in question being estimated at around £1,750 per case in 2012/13 prices (Furlong *et al.*, 2012). A similar analysis in a study by Dretzske *et al.* (2005), covering a larger number of trials, yields broadly comparable figures (£1,875 per child brought below the clinical threshold by community-based group parenting programmes and £1,315 for clinic-based group programmes).

It was noted in Chapter 4 that on one estimate the lifetime cost of a child with conduct disorder is around £260,000 while the lifetime cost of a child with moderate (sub-threshold) conduct problems is around £85,000, in each case measured against the baseline of a child with no problems. Effectiveness trials show that among those children whose behaviour improves following a parenting intervention, some move into the 'no problems' category while others make the smaller move into the 'moderate problems' group. For example, work by NICE indicates that among 3-year-old children with conduct disorder who move below the clinical cut-off following a parenting intervention, 46% move into the 'moderate problems' group and 54% into the 'no problems' group (NICE, 2013).

Taking a conservative approach, suppose that all those who improve remain with moderate problems. On this basis, the potential benefits of intervention may be represented by the difference in lifetime costs between a child with conduct disorder and one with moderate problems, i.e. £175,000 (£260,000 minus £85,000).

Comparing costs and benefits, the average cost of bringing a child with conduct disorder below the clinical threshold is estimated at £1,750 and the potential benefit in terms of reduced lifetime costs at £175,000. Lifetime costs thus need to be reduced by just 1% to cover the costs of the intervention. This is a strikingly small number.

As a more demanding test, the Cochrane review includes estimates not only of the cost of bringing an average child with conduct disorder below the clinical threshold but also the cost of achieving this for a child with the highest level of conduct problems. The latter cost is put at around £6,650 in 2012/13 prices. Even using this higher figure, lifetime costs need to be reduced by just 4% to cover outlays on the intervention.

These figures show that the costs of effective intervention for conduct disorder are very small relative to the potential benefits. In practice many other factors also need to be considered. For example, the calculations implicitly assume that the benefits of intervention persist throughout the life course, but long-term follow-up data are not available to substantiate this. Also, around half of children with conduct disorder recover naturally, without any need for intervention. On the other hand, the costs of conduct disorder and hence the potential benefits of effective intervention are under-estimated in all studies. Even with the qualifications just noted, it remains the case that only a modest degree of success is needed for parenting programmes to be good value for money.

Benefit/cost ratios

This section reviews the evidence on the returns from parenting programmes using the benefit/cost ratio as an overall measure of performance. A ratio of say 4:1 indicates that every £1 invested in a programme yields benefits valued at £4. Where information is available, estimates are given separately for the returns measured from a societal perspective and from the perspective of the public sector.

Evidence is presented using four main studies, all of which combine economic modelling with data on the effectiveness of programmes derived from meta-analyses, using pooled results from large numbers of individual trials. These sources are:

1. Washington State Institute for Public Policy (WSIPPP, 2013): for some years the WSIPP have been producing estimates of economic returns for a range of public sector programmes, using a common cost-benefit framework and methodology. Initially the work focused mainly on programmes in the criminal justice area but coverage has been steadily extended and now includes a number of interventions relating to child mental health, including parenting programmes.
2. Social Research Unit (SRU, 2013): SRU in Dartington has adopted the WSIPP framework of analysis and sought to re-populate it using UK data. While there is a good deal of overlap between these two sources, there remain sufficient differences to justify including results from both.
3. NICE (2013): NICE's most recent guideline on conduct disorder includes evidence on the cost-effectiveness of a range of interventions for this condition including parenting programmes, based on economic modelling.
4. Bonin *et al.* (2011a; see also 2011b): this is an economic modelling study undertaken for the Department of Health as a part of a wider project on the economic case for mental health promotion and mental illness prevention.

Summary results for group parenting programmes from these studies are as follows:

	Benefit/cost ratio	
	society	public sector only
WSIPP		
• Triple P	5.6 : 1	1.9 : 1
• Incredible Years	1.2 : 1	0.4 : 1
SRU		
• Generic programme	1.7 : 1	1.2 : 1
• Triple P	0.9 : 1	0.7 : 1
• Incredible Years	1.4 : 1	0.9 : 1
NICE		
• Generic programme	n/a	1.6 : 1
Bonin *et al.*		
• Generic programme	7.9 : 1	2.9 : 1

For reasons discussed below, these figures show quite a wide spread. Taking a simple unweighted average of the various estimates, the benefit/cost ratio for parenting programmes is 3.4:1 when measured from a societal perspective, indicating that these programmes are very good value for money when all benefits are taken into account, and 1.4:1 when measured from a purely public sector perspective, showing that programme costs are more than covered by subsequent savings in public spending.

The returns to the public sector are in fact higher than this if measured in a UK context. This is because the WSIPP estimates relate to the US, where a higher proportion of spending on programmes such as health comes from non-public sources. For example, the WSIPP study of Triple P shows that 78% of all benefits come from savings in healthcare costs, yet only 33% of total benefits accrue to the taxpayer. If all savings in health costs in this study and the one for Incredible Years in WSIPP are re-defined as savings in public spending, the public sector benefit/cost ratio averaged over all seven estimates given in the table above increases from 1.4:1 to at least 2.1:1. In other words, every £1 spent on parenting programmes leads to subsequent savings in public spending of over £2. Against this, there is some evidence that the cost of providing parenting programmes is higher in this country than in the US, which would obviously reduce the net returns (SRU, 2013). The reasons for this difference in costs are not entirely clear, although it may in part be because these programmes are provided on a larger scale in the US, which may result in some economies.

Comparing the four sources of evidence used in the table, the differences in estimated benefit/cost ratios reflect a number of factors. These include the following.

Time period: the NICE study models benefits only up to age 11 following an intervention at age 3, whereas Bonin *et al.* follow benefits up to age 30 after an intervention at age 5. WSIPP and SRU also model an intervention at age 5 and seek to measure lifetime benefits, although in practice those accruing beyond childhood are extremely small.

Effectiveness of the intervention: effect sizes used in the modelling vary partly because of differences in the coverage of trials in the meta-analyses, but also because WSIPP and SRU incorporate large downward adjustments to

allow for perceived methodological weaknesses in some of the studies used. There is some justification for these adjustments. On the other hand, they result in significantly smaller effect sizes than those used in NICE and Bonin *et al.*, even though the latter are broadly in line with those given in the Cochrane review, which only includes studies meeting very high standards of methodological quality.

Drop-out: Bonin *et al.* assume that as many as 44% of all parents drop out of a training programme before completion, with the further assumption that children derive no benefit if parental attendance is incomplete. No allowance appears to be made for drop-out in NICE. The estimates of benefits in WSIPP and SRU are based on intention-to-treat analysis, which means that outcomes are measured for all participants in the original sample of a trial and not simply those who complete the programme. Drop-out is therefore taken into account, but the scale of this is not explicitly stated.

Persistence of treatment gains: Bonin *et al.* and NICE both assume a 50% rate of relapse among children whose behaviour initially improves as a result of a parenting intervention; in other words, the behaviour of these children rapidly reverts to its original level. It is also assumed that some of those who do improve would have done so anyway, in line with the natural rate of recovery from conduct disorder. The modelling procedures jointly used by WSIPP and SRU are different from those in Bonin *et al.* and NICE but have the effect that treatment gains generally are smaller and more transient.

Coverage of benefits: as noted in the table, the NICE study includes only those benefits which take the form of savings in public expenditure. Estimated savings in child healthcare costs are broadly similar in WSIPP, NICE and Bonin *et al.* but much lower in SRU. This is probably because the savings in SRU are based on the costs of child health care given in the paper by Snell *et al.* (2013), which as noted earlier substantially under-estimates these costs, perhaps by a factor of ten. No savings in education costs are identified in WSIPP, while those given in NICE and Bonin *et al.* cover only the costs associated with special education needs and not also those falling on frontline education. The paper by Snell *et al.* suggests that the latter account for the bulk of extra education costs. Costs associated with crime are important only in Bonin *et al.* In the case of NICE, this is very largely because the time period for analysis is truncated at age 11, while for WSIPP and SRU the explanation appears to be that the impact of parenting interventions on antisocial behaviour is very short-lived. SRU also base their modelling on the assumption that children with conduct disorder are no more likely than average to become involved in criminal activity, despite the very large body of evidence to the contrary. The WSIPP and SRU studies of Triple P include some benefits in the form of increased earnings and reduced health costs resulting from a favourable impact of this programme on parental depression; otherwise all impacts on parents and also on siblings are omitted in all studies. WSIPP and SRU allow for a small increase in the subsequent earnings of children who benefit from a parenting intervention, but this is not covered in NICE or Bonin *et al.*

The extent of these and other differences in methodology clearly makes it difficult to draw direct comparisons between the four studies. A further complication is that even relatively small changes in modelling procedures can have a sizeable impact on the overall results. For example, the NICE study models a parenting intervention at age 3 for the child, with benefits being tracked for the following seven years, a combination of assumptions which means that any impact on juvenile offending is almost completely ruled out. To show the possible effect of a change in the child starting age for the analysis, it may be noted that the NICE report also includes an economic analysis of another type of intervention for conduct disorder, one which is given at age 7 and is child- rather than parent-focused. This has a broadly similar cost to a parenting programme but a significantly smaller impact on behaviour. Despite this, the estimated public sector benefit/cost ratio is almost twice as large, at 3.1:1 compared with 1.6:1. This is mainly because the follow-up period (up to age 14) now includes a time when some children with conduct disorder start becoming

regular offenders. If the estimated benefits of this intervention in terms of reduced costs in the criminal justice system are included in the benefits of the parenting intervention, the benefit/cost ratio of the latter would rise by more than half, to 2.5:1. This is clearly a mechanistic calculation, but does illustrate the potential sensitivity of modelling results to specific assumptions and procedures.

Short-term budgetary impacts

Particularly when allowance is made for omitted benefits, it is clear that well-designed group parenting programme are very good value for money from a societal perspective. The evidence also indicates that, over time, these programmes more than pay for themselves in public expenditure terms. This still leaves open some questions relating to affordability. In particular, what is the short-term impact on public sector budgets and which agencies within the public sector benefit most?

To address these questions use is made mainly of the study by Bonin *et al.*, for which detailed year-by-year information has been made available. Measured in 2012/13 prices, the average cost of a parenting programme is put at £1,282 per child in this study. Public sector savings in the short term (combined total for years 1 and 2 following implementation of the programme) and in the medium term (combined total for years 3-7) are estimated as follows, measured in £s per child:

These figures show that intervention costs are fully recovered in terms of public expenditure savings after seven years, with about a third of the savings accruing in the short term (years 1 and 2). The returns are distributed over a range of agencies, with significant savings to the NHS and education in both the short and medium term and some benefits accruing to the criminal justice system towards the end of the 7-year period. Going beyond the 7-year cut-off, savings in the criminal justice system build up steadily and in the long term the costs of the intervention are fully covered both by savings in this system and, separately, by savings in the NHS.

Estimated savings in the education system are significantly lower than those in the NHS, but as noted above the baseline costs against which education savings are measured cover only the costs of special education needs and not also the extra costs falling on frontline education services resulting from children's severe behavioural problems. The costing analysis by Snell *et al.*, which was not available at the time of the Bonin *et al.* study, suggests that extra frontline costs account for around 62% of all additional educational costs.

PUBLIC SECTOR SAVINGS FOLLOWING PROGRAMME IMPLEMENTATION (£ PER CHILD)

	years 1-2	years 3-7	total over 7 years
NHS	231	320	551
Personal social services	33	21	54
Education	181	165	346
Criminal justice system	0	322	322
Total public sector	445	828	1273

If the estimates in Bonin *et al.* are increased in line with this figure, education savings rise to £478 in years 1-2 and £436 in years 3-7. For the public sector as a whole, total savings increase to £742 in years 1-2, corresponding to nearly 60% of the cost of the intervention, and to £1,099 in years 3-7. Full cost recovery is achieved within five years and over the 7-year period as a whole the public sector saves £1.44 for every £1 invested.

The use of a 7-year follow-up period for analysis also allows a direct comparison with the modelling study by NICE, which uses the same time span. Measured in 2012/13 prices, the cost of the intervention in the NICE study is put at £1,230 per child and subsequent savings in total public spending at £2,012. Intervention costs are fully recovered after about four years. Of the savings over seven years, 57% (£1,157) accrue to health and personal social services, 40% (£804) to education and the small remainder (£51) to criminal justice.

As in the study by Bonin *et al.*, the figures for education relate only to the costs of special education needs. If allowance is also made for extra frontline education costs, total savings in public spending in the NICE analysis increase to £3,331 over 7 years, implying a public sector benefit/cost ratio of 2.7:1. Savings in education costs alone rise to £2,123. Set against an intervention cost of £1,230, this implies that for the education sector investment in parenting programmes is more than justified on purely financial grounds.

Other programmes

All of the analysis presented above relates to group parenting programmes, but results may also be presented for two other interventions which are covered in the economic modelling work undertaken by WSIPP: the Triple P multi-level parenting system which has been trialled on a population-wide basis in South Carolina, and Family Nurse Partnerships.

The WSIPP analysis shows that both these programmes are very good value for money. This particularly applies to the Triple P system, as total benefits are estimated to exceed the costs of the programme by a factor of six. Most of the benefits relate to reductions in child abuse and neglect and savings in expenditure on out-of-home placements. Benefits accruing to taxpayers account for nearly 40% of the total, implying that every $1 invested in the programme yields savings to the taxpayer of around $2.30.

The Family Nurse Partnership programme is a relatively intensive intervention and its costs are estimated at $9,600 per family, spread over two years. Total benefits are estimated at nearly $23,000 per family, implying a benefit/cost ratio of 2.4:1 from the perspective of society as a whole. Nearly two-thirds of the benefits are linked to better outcomes for the mothers participating in the programme, mainly in the form of higher earnings, and the remainder are mainly accounted for by reduced crime and higher earnings among the children. Benefits accruing to taxpayers are estimated at around $6,200 per family, or around two-thirds of the cost of the programme.

Implementation and targeting of programmes

Finally, economic analysis may be used to underline the importance of implementing programmes effectively and also ensuring that they are targeted at the families and children who are likely to benefit most.

When budgets are tight, there is a natural tendency to cut corners in the implementation of programmes, for example by employing staff who are not fully trained, but in all likelihood such attempts will turn out to be false economies, with any immediate savings being greatly outweighed by the loss of future benefits.

Two examples may be used to illustrate this. First, it was noted above that in the study by Bonin *et al.* it is assumed that 44% of parents drop out before completing a behavioural training programme and that in consequence the children of these parents make no improvement in their behaviour. The figure of 44% is at the upper end of a range suggested by evidence reviews and was adopted as a means of avoiding optimism in the overall results. Whatever the precise figure, it is clear that drop-out has a high cost.

At first sight it might appear that the scale of this cost is given by the loss of the average value of benefits associated with a parenting programme. Thus the study by Bonin *et al.* estimates that a parenting intervention yields total long-term benefits per child of around £10,200 from the perspective of society as a whole and around £3,700 in the form of reduced public spending. However, these are averages which include benefits of zero for 44 out of every 100 children, meaning that benefits for the remaining 56 must be considerably higher than the overall average. Benefits per family completing the intervention work at around £18,200 for total benefits (i.e. £10,600 ÷ 0.56) and around £6,600 for public expenditure savings (£3,700 ÷ 0.56) and these are the figures that represent the cost of one drop-out.

Parents drop out of programmes for a variety of reasons, but the available evidence suggests that it is often practical problems such as difficulties with transport or childcare that constitute the main barrier to initial and continuing engagement. Conversely, engagement can often be improved by holding groups in convenient locations and providing refreshments. Money spent on addressing these practical issues is likely to yield a high return, as their cost is very modest relative to the benefits of reducing drop-out. Data from the successful Sure Start trial in north Wales show that in 2012/13 prices the total cost of running a parenting group for 8-12 participants over 12 sessions amounted to £15,895 (Edwards *et al.*, 2007). Within this, the combined cost of transport, crèche facilities, venue rental and refreshments amounted to £2,700, or 17% of the total. Spread over say ten parents, a cost of £270 per head is clearly very small when set against the benefit of up to £18,200 per case from reducing drop-out.

As a second illustration of the importance of effective implementation, reference may be made to the finding in the Cochrane review mentioned in Chapter 5, that the effectiveness of parenting interventions is significantly reduced if they have low programme fidelity. For example, the effect size for impact on child conduct problems (independent reports) is 0.44 when averaged over all programmes in the Cochrane review, but only half this (0.22) for those with low fidelity and 0.53 for those with high fidelity (Furlong *et al.*, 2012). Low fidelity thus means sacrificing at least half the benefits of an average intervention. Again using the study by Bonin *et al.* as a reference point, this amounts to a loss of £5,100 per child in terms of total benefits and £1,850 in terms of savings in public spending.

In the case of targeting, it was noted in Chapter 5 that parenting programmes are at least as effective for children with severe behavioural problems as they are for children with more moderate difficulties. On the other hand, the long-term costs of behavioural problems, and hence the potential benefits of intervention, are around three times as high among the 5% of children whose problems are sufficiently severe to merit a diagnosis of conduct disorder as they are among the 15-20% with more moderate, sub-threshold problems. Effective targeting of programmes at those with the most severe problems will therefore yield much higher returns. Budgetary constraints in the public sector are always likely to impose some limits on the availability of parenting programmes and it is an important responsibility of budget-holders to ensure that limited resources are used to best overall effect.

References

Bardone, A., Moffitt, T., Caspi. A., Dickson, N. & Silva, P. (1996) Adult mental health and social outcomes of adolescent girls with depression and conduct disorder. *Development and Psychopathology*, 8, 811-829.

Barlow, J., Coren, E. & Stewart-Brown, S. (2002) Meta-analysis of the effectiveness of parenting programmes in improving maternal psychosocial health. *British Journal of General Practice*, March 2002, 223-233.

Barrett, R. (2010) Disadvantaged groups in the labour market. *Economic and Labour Market Review*, 4(6), 18-24.

Bonin, E., Stevens, M., Beecham, J., Byford, S. & Parsonage, M. (2011a) Parenting interventions for the prevention of persistent conduct disorders. In Knapp, M., McDaid, D. & Parsonage, M. (eds.) *Mental Health Promotion and Mental Illness Prevention: the economic case*. London: Department of Health.

Bonin, E., Stevens, M., Beecham, J., Byford, S. & Parsonage, M. (2011b) Costs and longer-term savings of parenting programmes for the prevention of persistent conduct disorder: a modelling study. *BMC Public Health 2011*, 11:803.

Bosquet, M. & Egeland, B. (2000) Predicting parenting behaviours from antisocial practices content scale scores of the MMPI-2 administered during pregnancy. *Journal of Personality Assessment*, 74(1), 146-162.

Brand, S. & Price, R. (2000) *The Economic and Social Costs of Crime. Home Office Research Study 217*. London: Home Office.

Brown, E., Khan, L. & Parsonage, M. (2012) *A Chance to Change: Delivering effective parenting programmes to transform lives*. London: Centre for Mental Health.

Brown, S. & Taylor, K. (2008) Bullying, education and earnings: evidence from the National Child Development Survey. *Economics of Education Review*, 27, 387-401.

Bywater, T., Hutchings, J. *et al.* (2009) Long-term effectiveness of a parenting intervention for children at risk of developing conduct disorder. *British Journal of Psychiatry*, 195, 318-324.

Centre for Mental Health (2009) *The Chance of a Lifetime: Preventing early conduct problems and reducing crime*. London: Centre for Mental Health.

Cohen (1998) The monetary value of saving a high risk youth. *Journal of Quantitative Criminology*, 14, 5-33.

Cohen, M. & Piquero, A. (2009) New evidence on the monetary value of saving a high risk youth. *Journal of Quantitative Criminology*, 25, 25-49.

Copeland, W., Wolke, D., Angold, A. & Costello, J. (2013) Adult psychiatric outcomes of bullying and being bullied by peers in childhood and adolescence. *JAMA Psychiatry*, 70(4), 419-426.

Curtis, L. (2012) *Unit Costs of Health and Social Care 2012*. PSSRU, University of Kent.

Department of Health (2011) *FNP Evidence Summary Leaflet*. Available at www.gov.uk/government/uploads/system/uploads/attachment_data/file/215542/dh_128008.pdf.

Department of Health (2013) *Programme Budgeting Aggregate PCT Expenditure for Financial Years 2003/04 to 2011/12*. Available at www.networks.nhs.uk/nhs-networks/health-investment-network/news/2011-12-programme-budgeting-data-now-available.

Dretzke, J., Frew, E. *et al.* (2005) The effectiveness and cost-effectiveness of parent training/education programmes for the treatment of conduct disorder, including oppositional defiant disorder, in children. *Health Technology Assessment*, vol. 9, no. 50.

Dretzke, J., Davenport, C. *et al.* (2009) The clinical effectiveness of different parenting programmes for children with conduct problems: a systematic review of randomised controlled trials. *Child and Adolescent Psychiatry and Mental Health*, 3,7.

Dubourg, R., Hamed, J. & Thorns, J. (2005) *The Economic and Social Costs of Crime against Individuals and Households 2003/04. Home Office Online Report 30/05*. Available at www.gov.uk/government/uploads/system/uploads/attachment_data/file/191498/Green_Book_supplementary_guidance_economic_social_costs_crime_individuals_households.pdf.

Edwards, R., Coéilleachair, A. *et al.* (2007) Parenting programmes for parents of children at risk of developing conduct disorder: cost effectiveness analysis. *BMJ*, 334:682.

Farrington, D. (1995) The development of offending and antisocial behaviour from childhood: key findings from the Cambridge study in delinquent development. *Journal of Child Psychology and Psychiatry*, 360(6), 929-964.

Farrington, D., Coid, J. *et al.* (2006) *Criminal Careers up to Age 50 and Life Success up to Age 48: New findings from the Cambridge Study in Delinquent Development. Home Office Research Study 299*. London: Home Office.

Fergusson, D. & Horwood, J. (1998) Early conduct problems and later life opportunities. *Journal of Child Psychology and Psychiatry*, 39(8), 1097-1108.

Fergusson, D., Horwood, J. & Ridder, E. (2005) Show me the child at seven: the consequences of conduct problems in childhood for psychosocial functioning in adulthood. *Journal of Child Psychology and Psychiatry*, 46(8), 837-849.

Fergusson, D. & Lynskey, M. (1998) Conduct problems in childhood and psychosocial outcomes in young adulthood. *Journal of Emotional and Behavioral Disorders*, 6(1), 2-18.

Foster, M. & Jones, D. (2005) The high costs of aggression: public expenditures resulting from conduct disorder. *American Journal of Public Health*, 95(10), 1767-1772.

Friedli, L. & Parsonage, M. (2007) *Mental Health Promotion: Building an economic case*. Belfast: Northern Ireland Association for Mental Health.

Furlong, M., McGilloway, S. *et al.* (2102) *Behavioural and cognitive-behavioural group-based parenting programmes for early-onset conduct problems in children aged 3 to 12 years*. The Cochrane Library, Issue 2.

Gardner, F., Hutchings, J., Bywater, T. & Whitaker, C. (2010) Who benefits and how does it work? Moderators and mediators of outcomes in an effectiveness trial of a parenting intervention. *Journal of Clinical Child and Adolescent Psychology*, 39(4), 568-580.

Green, H., McGinnity, A., Meltzer, H., Ford, T. & Goodman, R. (2005) *Mental Health of Children and Young People in Great Britain, 2004*. Crown Copyright. Basingstoke: Palgrave Macmillan.

Hummel, S., Naylor, P. *et al.* (2009) *Cost-effectiveness of Universal Interventions which Aim to Promote Emotional and Social Wellbeing in Secondary Schools*. ScHARR, University of Sheffield. Available at www.nice.org.uk/nicemedia/live/11991/45517/45517.pdf.

Hutchings, J., Bywater, T. *et al.* (2007) Parenting intervention in Sure Start services for children at risk of developing conduct disorder: pragmatic randomised controlled trial. *BMJ*, 29 March 2007, 334.

Jaffée, S., Belsky, J. *et al.* (2006) When parents have a history of conduct disorder: how is the caregiving environment affected? *Journal of Abnormal Psychology*, 115(2), 309-319.

Jaffée, S., Moffitt, T., Caspi, A. & Taylor, A. (2003) Life with (or without) father: the benefits of living with two biological parents depend on the father's antisocial behaviour. *Child Development*, 74, 109-126.

Jokela, M., Ferrie, J. & Kivimaki, M. (2009) Childhood problems behaviours and death by midlife. *Journal of the American Academy of Child and Adolescent Psychiatry*, 48(1), 19-24.

Kim-Cohen, J., Caspi, A. *et al.* (2003) Prior juvenile diagnoses in adults with mental disorders. *Archives of General Psychiatry*, 60, 709-717.

Knapp, M., King, D., Healey, A. & Thomas, C. (2011) Economic outcomes in adulthood and their associations with antisocial conduct, attention deficit and anxiety problems in childhood. *Journal of Mental Health Policy and Economics*, 14(3), 137-147.

Knapp, M., Scott, S. & Davies, J. (1999) The cost of antisocial behaviour in younger children. *Clinical Child Psychology and Psychiatry*, 4(4), 457-473.

Kratzer, L. & Hodgins, S. (1997) Adult outcomes of child conduct problems: a cohort study. *Journal of Abnormal Child Psychology*, 25(1), 65-81.

Krueger, R., Moffitt, T. *et al.* (1998) Assortative mating for antisocial behaviour: developmental and methodological implications. *Behaviour Genetics*, 28(3), 173-186.

Lundahl, B., Nimer, J. & Parsons, B. (2006) Preventing child abuse: a meta-analysis of parent training programs. *Research on Social Work Practice*, 16(3), 251-262.

Masten, A., Roisman, G. *et al.*, (2005) Developmental cascades: linking academic achievement and externalizing and internalizing symptoms over 20 years. *Developmental Psychology*, 41(5), 733-746.

Meltzer, H., Gatward, R., Corbin, T., Goodman, R. & Ford, T. (2003a) *The Mental Health of Young People Looked After by Local Authorities in England*. London: TSO.

Meltzer, H., Gatward, R., Corbin, T., Goodman, R. & Ford, T. (2003b) *Persistence, onset, risk factors and outcomes of childhood mental disorders*. London: TSO.

Moffitt, T. (1993) Adolescence-limited versus life-course-persistent antisocial behaviour: a developmental taxonomy. *Psychological Review*, 100, 674-701.

Moffitt, T., Caspi, A., Harrington, H. & Milne, B. (2002) Males on the life-course-persistent and adolescent-limited pathways: follow-up at age 26 years. *Development and Psychopathology*, 14, 179-207.

Muntz, R., Hutchings, J. *et al.* (2004) Economic evaluation of treatments for children with severe behavioural problems. *Journal of Mental Health Policy and Economics*, 7, 99-106.

Murray, J., Irving, B., Farrington, D., Colman, I. & Bloxsom, A. (2010) Very early predictors of conduct problems and crime: results from a national cohort study. *Journal of Child Psychology and Psychiatry*, 5(11), 1198-1207.

National Audit Office (2011) *The Cost of a Cohort of Young Offenders to the Criminal Justice System*. Available at www.nao.org.uk/wp-content/uploads/2010/12/1011663_technical_paper.pdf.

National Institute for Health and Clinical Excellence (2013) *Antisocial Behaviour and Conduct Disorders in Children and Young People: Recognition, intervention and management. National Clinical Guideline Number 158*. Available at publications.nice.org.uk/antisocial-behaviour-and-conduct-disorders-in-children-and-young-people-recognition-intervention-cg158.

Odgers, C., Caspi. A. *et al.* (2007) Prediction of differential adult health burden by conduct problem subtypes in males. *Archives of General Psychiatry*, 64, 476-484.

Office for National Statistics (2009) *Social Trends 2009, chapter on crime and justice*. Available at www.ons.gov.uk/ons/rel/social-trends-rd/social-trends/social-trends-39/index.html.

Pajer, K. (1998) What happens to "bad" girls? A review of the adult outcomes of antisocial adolescent girls. *American Journal of Psychiatry*, 155, 862-870.

Patterson, G, DeBaryshe, B & Ramsey, E. (1989) A developmental perspective on antisocial behaviour. *American Journal of Psychology*, 44, 329-335.

Prinz, R., Sanders, M. *et al.* (2009) Population-based prevention of child maltreatment: the US Triple P System population trial. *Prevention Science*, 10, 1-12.

Ramrakha, S., Bell, M. *et al.* (2007) Childhood behaviour problems linked to sexual risk taking in young adulthood: a birth cohort study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 46(10), 1272-1279.

Romeo, R., Knapp, M. & Scott, S. (2006) Economic cost of severe antisocial behaviour in children – and who pays it. *British Journal of Psychiatry*, 188, 547-553.

Rutter, M., Kim-Cohen, J., & Maughan, B. (2006) Continuities and discontinuities in psychopathology between childhood and adult life. *Journal of Child Psychology and Psychiatry*, 47(3), 276-295.

Scott, S. (2004) Childhood antecedents of juvenile delinquency. In Bailey, S. and Dolan, M. (eds.) *Adolescent Forensic Psychiatry*. London: Arnold.

Scott, S. (2008) An update on interventions for conduct disorder. *Advances in Psychiatric Treatment*, 14, 61-70.

Scott, S., Knapp, M., Henderson, J. & Maughan, B. (2001) Financial cost of social exclusion: follow-up study of antisocial children into adulthood. *BMJ*, 323, 28 July 2001.

Shepherd, J., Shepherd, I., Newcombe, R. & Farrington, D. (2009) Impact of antisocial lifestyle on health: chronic disability and death by middle age. *Journal of Public Health*, 31(4), 506-511.

Snell, T., Knapp, M. *et al.* (2013) Economic impact of childhood psychiatric disorder on public sector services in Britain: estimates from national survey data. *Journal of Child Psychology and Psychiatry*, 54(8), 977-985.

Social Research Unit (2013) *Investing in Children*. Available at http://investinginchildren.eu/.

Spencer, N., Devereux, E. *et al.* (2005) Disabling conditions and registration for child abuse and neglect: a population-based study. *Pediatrics*, 116(3), 609-613.

Stewart-Brown, S. & Schrader-Mcmillan, A. (2011) Parenting for mental health: what does the evidence say we should do? *Health Promotion International*, 26(S1), i10-i28.

Verona, E. & Sachs-Ericsson, N. (2005) The intergenerational transmission of externalizing behaviors in adult particpants: the mediating role of child abuse. *Journal of Consulting and Clinical Psychology*, 73(6), 1135-1145.

Washington State Institute for Public Policy (2013) *Benefit-Cost Results*. Available at www.wsipp.wa.gov/BenefitCost.

Webster-Stratton, C., Rinaldi, J. & Reid, J. (2011) Long-term outcomes of Incredible Years parenting program: predictors of adolescent adjustment. *Child and Adolescent Mental Health*, 16(1), 38-46.

Wolke, D., Woods, S., Bloomfield, L. & Karstadt, L. (2000) The association between direct and relational bullying and behaviour problems among primary school children. *Journal of Child Psychology and Psychiatry*, 41(8), 989-1002.

Building a better future

Published January 2014

Photograph: istockphoto.com/ayala_studio

£10 where sold

Register for our monthly email bulletins and get copies of our publications at www.centreformentalhealth.org.uk

Centre for Mental Health

Realising a better future

Centre for Mental Health

134–138 Borough High Street, London SE1 1LB

Tel 020 7827 8300

Fax 020 7827 8369

www.centreformentalhealth.org.uk

Charity registration no. 1091156. A company limited by guarantee registered in England and Wales no. 4373019.