Department for Education

Research Report DFE-RR254

Family stressors and children's outcomes

Elizabeth Jones, Leslie Gutman & Lucinda Platt

Childhood Wellbeing Research Centre

The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Education.

Acknowledgements

The authors are grateful to staff at the DfE for funding the research and for their helpful comments and suggestions. In particular we would like to thank Jessica Dunn, who oversaw the research. We are also grateful to Shirley Dex, who initiated the project and provided valuable comments at various points.

We are particularly indebted to the MCS families and to all the families who took part in the ALSPAC study, who have voluntarily provided their information to the study.

The Millennium Cohort Study (MCS) is funded by the Economic and Social Research Council and the consortium of government departments. The UK Medical Research Council and the Wellcome Trust (Grant ref: 092731) and the University of Bristol provide core support for ALSPAC. We are grateful to the funders, to the Centre for Longitudinal Studies (CLS), Institute of Education for the use of the MCS data and to the Economic and Social Data Service (ESDS) for making them available, to the midwives who helped recruit the ALSPAC participants, and to the whole ALSPAC team for the use of the ALSPAC data.

The authors bear sole responsibility for the analysis and interpretation of these data.

Contact

Prof Lucinda Platt, Centre for Longitudinal Studies, Department of Quantitative Social Science, Institute of Education, University of London. Contact l.platt@ioe.ac.uk.

Childhood Wellbeing Research Centre

The Childhood Wellbeing Research Centre is an independent research centre with funding from the Department for Education. It is a partnership between the Thomas Coram Research Unit (TCRU) and other centres at the Institute of Education, the Centre for Child and Family Research (CCFR) at Loughborough University and the Personal Social Services Research Unit at the University of Kent.

Contents

Executive summary

The research reported here aimed to identify:

1. which family stress factors and parental behaviours were associated with worse outcomes for children at age 7 and which factors helped children to succeed
2. whether stressful life events experienced at different periods of childhood were associated with worse outcomes in adolescence.

Differences in children's outcomes have been shown to emerge early in life, and to be linked to both family circumstances, such as social disadvantage, and parenting behaviours, such as parenting style and activities with the child. Both these aspects of a child's environment are important for their early cognitive and emotional development. But it is not clear whether these early differences, and the factors associated with them, persist up to age 7.

Previous research has also shown that stressful life events are associated with worse outcomes for children. However, it has not previously been possible to explore whether particular life events are especially detrimental, whether they impact across different sorts of children's outcomes (educational, social etc.), and whether the effects of early childhood events persist into adolescence.

In order to target interventions, it is clearly important to understand which family circumstances are significant for child wellbeing at different ages, and how that varies across outcomes. A range of children's outcomes were examined using data from the Millennium Cohort Study (MCS) and the Avon Longitudinal Study of Parents and Children (ALSPAC). At age 7, these were verbal cognitive skills, non-verbal skills, maths skills, Key Stage 1 (KS1) attainment and behavioural difficulties. For teenagers, the following outcomes were explored at age 13-14: Key Stage 3 (KS3) attainment; emotional, behavioural, social, and school wellbeing; and Key Stage 4 (KS4) results at age 16.

Key findings

- A wide range of family background factors and parental behaviours are associated with children's outcomes at age 7. These tend to be the same factors that are important at earlier ages, and include parenting behaviours, family structure and socio-economic position of the family.
- Family poverty, child disability and the child's mother having higher qualifications are consistently associated with children faring respectively worse (poverty and disability) and better (higher maternal qualifications) across all five age 7 outcomes, holding other factors constant. No other factors are associated with all five outcomes.
- Different aspects of family background matter for different outcomes.
- Children can experience a range of stressful life events. Extreme stressful events, such as homelessness, victimisation or abuse, can have long-term effects on children's outcomes.

- Some stressful events impact on children's emotional and social wellbeing but not their educational outcomes: their negative impacts may thus be harder to pick up.
- Children are very varied and they can show great resilience. Even given the associations between early circumstances and subsequent outcomes, children perform very differently across a wide range of cognitive and behavioural outcomes.
- There is little evidence, however, that any positive parental behaviours have *more* impact in disadvantaged families, reducing the relative effect of that disadvantage.

Data and methodology

The research reported here set out to

a) ascertain from the existing research what types of family stress factors have been associated with worse children's outcomes,
b) whether such factors are associated with worse outcomes across five different domains at age 7,
c) conversely, which factors promote better outcomes for children at age 7
d) whether there are any such promotive factors or parental behaviours which specifically protect children from the negative impact of certain stressors,
e) whether stressful life events experienced at different ages in childhood impact on attainment at KS3 and KS4 (age 14 and 16) and on wellbeing at age 13.

To investigate these questions, a light-touch literature review was carried out to highlight existing associations between family background factors and parental behaviours and children's outcomes. This was followed by analysis of two large-scale longitudinal data sources: the Millennium Cohort Study (MCS) and the Avon Longitudinal Study of Parents and Children (ALSPAC). Further details on these two surveys are provided in Box 1.

Box 1: Data sources

The Millennium Cohort Study (MCS) is a survey of over 19,000 children born in 2000-2001 who are being followed over time. The families have been surveyed at ages 9 months, 3 years, 5 years and 7 years. The study provides a great deal of information on children's family background, and offers a range of measures of their wellbeing at age 7. Linked education data provide information on their attainment at this age. This report focuses on the approximately 9,000 MCS children who were born in England and who provided data at all the surveys.

The Avon Longitudinal Study of Parents and Children (ALSPAC) is a study of children born to over 14,000 mothers recruited in the Avon area during pregnancy in 1991 and 1992. The children have been surveyed year on year, and their health and development has been tracked in great detail since that initial recruitment. They and their parents have provided a great deal of genetic and direct physical measures as well as questionnaire data and environmental measures.

The literature review built on existing reviews of the field of family context and children's outcomes, supplemented by recent studies that have been carried out since the main reviews, and with a focus on earlier analyses of the MCS and ALSPAC.

Age 7 outcome measures and family stressors

The MCS research employed a series of statistical regression analyses to explore the relationships between each of various family and parental stress factors and age 7 outcomes, both separately and when all the other factors, including those promoting better child outcomes, were held constant. This enabled the specific association of each factor with each outcome to be assessed.

The five age 7 outcome measures considered were:

- non-verbal cognitive skills,
- verbal cognitive skills,
- maths skills,
- Key Stage 1 (KS1) attainment,
- behaviour.

These are all standard, validated measures and widely used in the assessment of children's development. They are described in more detail in Box 2.

Box 2: Age 7 outcome measures

Non-verbal cognitive skills are measured through the British Ability Scales (BAS) Pattern Construction measure. In this assessment the child reproduces designs by putting together flat squares or solid cubes with black and yellow patterns on each side. The test is timed and the score is based on accuracy and speed. A higher score represents greater non-verbal cognitive ability.

Verbal skills are measured through the BAS Word Reading assessment. The children are shown words on cards and asked to read them out. The score is based on the number and difficulty of words they manage to read, where a higher score represents greater verbal ability.

Maths skills are measured by the National Foundation for Educational Research Progress in Maths assessment. Children are given a variety of mathematical problems covering numbers, shape, space, measures and data handling. Their score is based on the number of problems they manage to complete with a higher score representing greater maths ability.

KS1 attainment is measured through performance at age 7. This measure derives from educational records from the National Pupil Database (NPD) linked in to the MCS data. The children were teacher-assessed in 2008, at the same time as the age 7 survey data were collected. The measure used was the aggregate score comprising reading, writing, speaking and listening, maths and science. A higher score represents higher KS1 attainment.

Behaviour is measured using the Strengths and Difficulties Questionnaire, which comprises responses by the parent to a series of 25 questions and is used to evaluate emotional-behavioural difficulties. The score for difficulties can range from 0 to 40, and a higher score means more difficulties.

Over 40 factors were evaluated for their association with children's age 7 outcomes. These were grouped into: child characteristics, family characteristics, parental characteristics and

behaviours, and social and neighbourhood factors. These are illustrated in more detail in Box 3.

They were further split into:

- *risk factors* which are associated with, or predictive of, worse outcomes on a given measure; and
- *promotive factors*, which are associated with, or predictive of, better outcomes on a given measure.

When investigating the net association of any given factor, *all* groups of factors were held constant.

Box 3: Factors used in analysis of age 7 outcomes

Child characteristics, which covers factors such as whether the child has a longstanding illness or disability and the amount of time the child spends watching TV.

Family characteristics, which covers factors such as the length of time the mother has spent as a lone parent, the number of brothers and sisters the child has, or whether the family has experienced poverty.

Parental interactions with the child, which includes factors such as whether the child's mother or father smokes, the extent of rules and their enforcement, child care by grandparents or other relatives and mothers' and fathers' report of how close they feel to the child.

Child's peer relationships, which includes factors such as how often the child sees friends outside school.

Parental social support and area characteristics, which covers factors such as whether the child's mother has friends or family in the area, whether relatives or friends help out financially – or would if needed, whether the mother regards the area as good for raising children.

The associations between these factors and the five outcomes can rarely be considered to be directly causal, since the factors addressed in the survey and included in the analyses typically act as 'indicators' of unmeasured practices and aspects of family context. However, the factors are measured prior to the age 7 outcomes to increase the chances of identifying a causal relationship.

Additional statistical analyses investigated whether there were family or parental factors that made a particular difference to disadvantaged children. Family poverty has consistently been associated in research with worse performance on a range of children's outcomes. This was also the case in the analyses carried out in this study. Income poverty, measured as having an income less than 60 per cent of the median after adjusting for family size, was significantly associated with all five outcomes, after holding all the other factors constant.

The gap in outcomes between children who experience family poverty and those who do not is a policy concern. The analysis attempted to ascertain if there were any family factors that mattered more for poor families, that is, that helped to reduce the gap. These statistical analyses involved interacting each factor with family poverty, to ascertain if the factor had a different impact for children in poor and non-poor families.

Age 13-16 analysis, outcomes and stressful events

For the teenage outcomes, the statistical analysis using ALSPAC data tested whether there was an association between stressful life events and each of the following outcomes: emotional, behavioural, social and school wellbeing (described further in Box 4), as well as KS3 (age 14) and KS4 (age 16) educational attainment. These associations were tested both individually and after controlling for a small set of relevant factors. The controls included the same outcome measured at an earlier time point, plus free-school meals status and special educational needs. The analysis could thereby identify whether there was a long-term as well as short-term association between the stressful event and the outcome.

Box 4: Age 13 wellbeing outcomes

Emotional wellbeing includes questions to parents about their teenagers' separation anxiety, fears, compulsions and obsessions, anxiety and moods.

Behavioural wellbeing includes questions about their teenagers' attention, awkward and troublesome behaviours, such as not listening, not following rules and telling lies.

Social wellbeing includes questions about their teenagers' friendships and social interactions and awareness, such as having at least one good friend, being liked by other children and awareness of other people's feelings.

School wellbeing includes questions about their teenagers' satisfaction and engagement in school, such as whether they enjoyed school and found it stimulating.

The stressful life events measured up to age 7, between age 7 and age 11, and between age 11 and age 13 were individually coded and then grouped into 18 types of event, ranging from bereavement to problems in school. The events were reported by parents and were those that they considered to be "exceptionally stressful" and "that would really upset almost anyone". The full list can be found in Box 5. The majority of children experienced no stressful events.

Box 5: Stressful life events

1. Death of parent
2. Death of family member or friend
3. Child was seriously ill or injured
4. Family member was seriously ill or injured
5. Friend was ill or injured
6. Saw crime or accident
7. Negative change in parent's financial situation
8. Domestic violence/abuse including alcohol and drugs
9. Victim of abuse, violence or bullying (not within immediate family)
10. Parents separated /divorced/ left
11. Moved/attended new school
12. Got a new (step) brother or sister
13. Pet died
14. Parents/family argued more than previously
15. Family member arrested
16. Homeless/Living in refuge/Foster care
17. Not seeing parents/siblings as much as usual
18. Problems in school or with friends

The results reported here for both the MCS and the ALSPAC analysis summarise whether the associations between family factors or stressful events and children's outcomes were statistically significant, that is whether they could reasonably be generalised to all children of the same age.

Findings: Age 7 outcomes and family factors

Earlier research has shown that different family factors can be associated with different types of children's outcomes. The MCS analysis was able to identify earlier childhood circumstances, parenting and family background factors that were each independently associated with specific children's outcomes; that is, with non-verbal skills, verbal skills, maths skills, KS1 attainment and behaviour.

Risk factors important for age 7 outcomes

Table 1 shows those risk factors associated in the statistical analysis with *worse* outcomes on the different child outcome measures. It summarises the associations after all other parental behaviours and family and contextual characteristics had been held constant.[1] Few risk factors were associated with worse outcomes on all outcome measures, once all other characteristics and behaviours were held constant. There were two exceptions.

One was if the child's family was in poverty at one or more occasions on which an MCS survey took place. Family poverty was associated with children having poorer non-verbal, verbal and maths skills, lower KS1 attainment and more behavioural difficulties. The second exception was if the child had a longstanding illness or disability.

Among family risk characteristics, the more siblings the child had, the worse their outcomes were predicted to be on four of the five measures. That is, greater numbers of siblings were associated with lower scores on the three measures of cognitive ability and of KS1 attainment. But increasing numbers of siblings was not associated with worse behavioural outcomes.

A number of other factors were negatively associated with one or more of the outcome measures. The more television the child watched daily, the worse their verbal ability scores tended to be, other things being equal. Having a mother who suffered or had suffered depression was associated with lower KS1 attainment and greater behavioural difficulties. Where the mother was a lone parent at previous MCS surveys, the child was predicted to have more behavioural difficulties. Where the family was on means-tested benefits or behind with bills, this was associated, over and above their poverty status, with lower verbal ability scores. Being behind with bills was also associated with worse behavioural outcomes.

[1] Full tables illustrating both the simple relationships between each factor and each outcome and showing all those where there was no statistically significant relationship between the factor and the outcome can be found in Chapter 3. There were few 'surprises', that is factors where past research indicated a significant relationship, but this was not found for any outcome in the age 7 analysis.

Table 1: Family and parental risk factors and their association with children's cognitive, educational and behavioural outcomes at age 7

	Non-verbal skills	Verbal skills	Maths skills	KS1 attainment	Behaviour
Child factors					
Child has a longstanding illness or disability	✓	✓	✓	✓	✓
The more hours child watches TV		✓			
Family Characteristics					
Family was in poverty on one or more occasions	✓	✓	✓	✓	✓
The more siblings the child has	✓	✓	✓	✓	
Mother is a lone parent					✓
Mother suffers from depression				✓	✓
Family is on means-tested benefits		✓			
Family is behind with their bills		✓			✓
Family interactions and behaviours					
Mother smokes		✓			✓
Father smokes		✓			
Father has difficulty with basic reading		✓	✓	✓	
Child is disciplined more often			✓	✓	✓
Grandparents care regularly for the child	✓				

Note: All factors were included in all analysis. Ticks show that the factor is a significant risk factor for the outcome (associated with worse outcomes) after controlling for all other factors. Blank cells represent no significant association.

Turning to behavioural indicators, father's and mother's smoking was associated with worse verbal skills and, for mother's smoking, with the child having more behavioural difficulties. The child's father having difficulty with basic reading was associated with poorer verbal skills, maths skills and KS1 attainment. More frequent disciplining was associated with poorer maths ability, KS1 outcomes and behaviour. Finally, regular grandparental care was associated with worse non-verbal skills.

Promotive factors important for age 7 outcomes

Table 2 shows those factors associated in the statistical analysis with better outcomes on the different measures. Once again, it summarises the associations after all other parental behaviours and family and contextual characteristics had been held constant.

One promotive factor that was consistently associated with all outcomes was mother's higher levels of educational qualifications, specifically, level 4 (diplomas) and above for cognitive skills and KS1 attainment, and level 5 (degrees) for behaviour.

Table 2: Family and parental promotive factors and their association with children's cognitive, educational and behavioural outcomes at age 7

	Non-verbal skills	Verbal skills	Maths skills	KS1 attainment	Behaviour
Family characteristics					
Mother has a higher level of qualifications	✓	✓	✓	✓	✓
Family is owner-occupier of home				✓	
The more rooms there are in the home	✓	✓	✓	✓	
Family interactions and behaviours					
Mother drinks alcohol more regularly					✓
Mother considers she is a good parent		✓			✓
Mother reads to child more often		✓	✓	✓	
Father reads to child more often		✓			
Mother says she is close to child					✓
Rules are strictly enforced		✓		✓	
Parents have contact with the child's school		✓			
Peer factors					
Child sees friends more often outside school					✓
Social support					
Grandparents *would* help financially if needed		✓		✓	
Neighbourhood or area					
Mother feels safe in the area		✓			
Family lives in less deprived area			✓		

Note: All factors were included in all analysis. Ticks show that the factor is a significant promotive factor for the particular outcome (associated with better outcomes) after controlling for all other factors. Blank cells represent no significant association.

Two aspects of housing were associated with better outcomes. Bigger houses corresponded to higher scores (for each additional room) on all three measures of cognitive ability and for KS1 attainment. In addition, living in an owner-occupied home was associated with higher educational attainment at age 7, though not with any of the other outcomes.

Various parental behaviours were also associated with more positive outcomes for children. These included the frequency with which mothers and fathers read to the child for verbal skills and, for mothers, also for maths skills and for KS1 attainment. A mother's positive perception of her parenting was associated with both better verbal skills and fewer behaviour difficulties. Mother's feelings of particular closeness to the child were also associated with fewer behavioural difficulties. The strict enforcement of rules was positively associated with better verbal skills and higher KS1 attainment, other things being equal.

Parental contact with the school was associated with the child having better verbal skills. Children's own frequency of contact with friends was associated with better behavioural outcomes. Potential financial support from grandparents was associated with better verbal skills and with higher KS1 attainment, while the mother feeling safe in the area was associated with the child having higher verbal skills. Living in a less deprived area was associated with the child having better maths skills.

Clearly these relationships cannot be considered to be directly or causally linked to the child's cognitive, educational and behavioural outcomes. However, such indicators may help to reveal the particular sets of family circumstances or the conditions under which more favourable cognitive skills, KS1 attainment and fewer behavioural difficulties occur.

Protective factors

The analysis also aimed to identify whether there were any protective factors; that is, factors that were associated with a reduction in the gap in cognitive skills, KS1 attainment or behaviour between those children with experience of family poverty and those without. Existing research has not looked extensively at this question, but has typically assumed that positive factors are equally positive for disadvantaged and advantaged children. Further statistical analysis showed that there were only a small number of protective factors, and they differed according to outcome. This indicates that the assumptions of early research are largely validated. Where factors are positive (such as parents reading to their child) they tend to be positive for advantaged and disadvantaged children alike. The exceptions are illustrated in Table 3.

Table 3: Protective factors for children in poverty and age 7 outcomes

	Non-verbal skills	Verbal skills	Maths skills	KS1 attainment	Behaviour
Family characteristics					
Mother has a higher level of qualifications			✓	✓	
Family is not on means-tested benefits		✓			
Family is owner-occupier of home				✓	
Peer factors					
Child sees friends more often outside school					✓
Neighbourhood or area					
Mother feels safe in the area		✓			

The analysis showed that:

- Children living in family poverty but with highly educated mothers had maths and KS1 scores that were closer to non-poor children; and those children living in poverty with less well educated mothers had bigger gaps.
- The combination of family poverty and being on means-tested benefits resulted in a bigger gap in verbal ability scores compared with children not in poverty, than poverty on its own.
- Poor children whose families lived in owner-occupied housing had KS1 scores that were closer to children who had never been in poverty. Those poor children who lived in social housing had a bigger gap.
- Children in poverty who saw friends more often had behavioural scores that were closer to otherwise similar children not in poverty. Those poor children who saw their friends less often tended to have worse behaviour.
- Similarly, children in poor families whose mothers felt safe in the area tended to have verbal skills that were more like those of non-poor children.

Findings: Age 13-16 outcomes and stressful life events

Turning to the impact of stressful life events, the analysis of the ALSPAC data provided a richer understanding of the role of specific stressful life events. It showed that these events could sometimes have enduring effects on educational outcomes and on wellbeing. Stressful events which were associated with lower KS3 attainment and worse wellbeing for teenagers, no matter what age they occurred, included:

- Domestic abuse
- Victimisation or abuse outside of the family

- Homelessness/placed in care

Stressful events which were associated with lower wellbeing but not educational attainment, no matter what age they occurred, included:

- Death in the family
- Serious illness in the family
- Family member arrested

Stressful events which were associated with lower educational attainment or worse wellbeing, but only when the event occurred when the child was older than 7 years, included:

- Parental divorce
- Parents arguing
- Not seeing parents/siblings as much as usual
- Moving/attending a new school

It is clear that stressful events can potentially disrupt teenagers' lives; and in some cases have enduring effects from early childhood. Some events are likely to be beyond the scope of intervention, such as parental separation and divorce. Indeed, in some cases parental separation may bring an end to stressful family experiences related to abuse and violence in the home. However, the analysis highlights the diversity and extent of stressful events in childhood, and their negative consequences across a range of outcomes. It also showed how some events remain significant for later outcomes only if they occur later in childhood, such as changing school after the transition to secondary schooling, rather than moving schools within primary education.

Conclusions and implications

The research on age 7 outcomes is, by and large, consistent with earlier analyses. It shows that a wide range of family and parental characteristics are associated with one or more child outcome, but few are consistently associated with all outcomes. Moreover, the results largely confirmed the pattern highlighted in earlier analyses of the MCS that, in a nutshell, both parenting and poverty matter for children's outcomes.

Tackling child poverty and supporting positive parenting are thus both important for ensuring children achieve their potential. However, there are few family or parental characteristics where intervention would lead to closing the gap between advantaged and disadvantaged children: positive parenting behaviours are equally positive for all children.

The analysis was able to include a range of measures of fathers' characteristics and behaviours. While relatively few of these were associated with children's outcomes, father's reading to the 7-year-old more frequently was associated with better verbal skills over and above how much the mother read to the child. The effect of a father reading to the child every day compared to never reading was about half that of having a highly educated mother rather than a mother with no qualifications, but about the same as the effect of not being poor compared to being poor. Conversely, where the father had poor basic skills, this

was associated with the child having poorer verbal skills, maths skills and lower KS1 scores, other things being equal.

KS1 scores might be expected to be more independent of family context and parenting than cognitive ability measures, once the child had been in school for a few years. The factors that are associated with KS1 outcomes are also likely to be important for subsequent educational attainment. Child disability, a higher number of siblings, having a depressed mother, having a father with limited literacy skills, and being frequently disciplined were all significant risk factors and associated with lower KS1 scores. The scale of the effects indicated that each additional sibling reduced KS1 scores by an equivalent amount to the impact of the family being in poverty rather than not, holding all factors constant; but the impact of disability on KS1 scores was somewhat larger. Having three siblings compared to no siblings was commensurate with the disadvantage associated with having a mother with no qualifications rather than a highly qualified mother, other things being equal. On the other hand, having a highly educated mother, living in owner occupation, having more rooms in the house, mother reading to the child more often, enforcement of rules, and having grandparents willing to help out financially if needed were all associated with higher KS1 scores. This tends to suggest that children's learning is promoted not only by specific parental behaviours, but also in contexts where there is some degree of financial security and support.

The age 7 analyses included a very wide range of factors to help account for the differences in children's outcomes across the five measures. Nevertheless, there remains much that cannot be 'explained', even by all those aspects of family and parenting that were included. Children are both varied in their outcomes and often resilient. Thus these reported associations, while they may support better outcomes or put children at risk of worse ones, are clearly far from being deterministic.

In relation to the role of stressful life events in adolescence, the analysis showed how particular stressful life events impact outcomes across a range of domains. It is clear that children can experience a range of stressful life events across their childhoods, including some extreme experiences, though, fortunately, this is true for a minority of children. Extreme stressful events, such as homelessness, victimisation or domestic violence/abuse, can have longer-term effects on attainment and wellbeing. Moreover, some stressful events impact on children's emotional and social wellbeing but not their educational outcomes: the negative impacts on their wellbeing may thus more easily be missed. Some stressful events appear to have no long-term impacts on the outcomes measured here, if they occur at younger ages.

1. Aims and outline

The research reported here had two main aims:

1. To identify which family factors and parental behaviours were associated with better and worse outcomes for children at age 7.
2. To establish whether stressful life events experienced at different periods of childhood were associated with worse outcomes in adolescence.

Differences in children's outcomes have been shown to emerge early in life, and to be linked to both family circumstances, such as social disadvantage, and parenting behaviours, such as parenting style and activities with the child. Both these aspects of a child's environment are important for their early cognitive and emotional development. But it is not clear whether these early differences, and the factors associated with them, persist up to age 7.

Previous research has also shown that stressful life events are associated with worse outcomes for children. However, it has not previously been possible to explore whether particular life events are especially detrimental, whether they impact across different sorts of children's outcomes (educational, social etc.), and whether the effects of early childhood events persist into adolescence.

In order to address these research aims, the research comprised three stages: first, to identify what factors have been associated with worse children's outcomes in existing research; second, to ascertain whether such factors are associated with worse outcomes across five different domains at age 7; and third, to investigate whether the negative effects of stressful life events affect attainment and wellbeing in adolescence.

The first stage involved a light-touch literature review and was carried out to highlight existing associations between family background factors and parental behaviours and children's outcomes. This is covered in Chapter 2 of the report.

It was followed by analysis of two large-scale longitudinal data sources: the Millennium Cohort Study (MCS) and the Avon Longitudinal Study of Parents and Children (ALSPAC).

The MCS analysis addressed the question of whether those factors highlighted in the literature review are linked to children's outcomes at age 7 across five domains of non-verbal skills, verbal skills, maths skills, KS1 attainment and behaviour. This investigation of the association of over 40 family and parental characteristics with the five outcomes is described in Chapter 3 of the report. It also examines whether any factors are 'protective' for children from disadvantaged backgrounds. That is, factors that have stronger associations among children brought up in poverty, and therefore close the gap between advantaged and disadvantaged children's outcomes.

Chapter 4 covers the ALSPAC analyses of stressful life events. It addresses the question of whether specific stressful life events are associated with one or more of five child wellbeing outcomes measured at ages 13-14 – emotional, behavioural, social and school wellbeing, and KS3 attainment – and at age 16 – KS4 attainment. It also explores whether the effects persist over time.

Chapter 5 provides some brief conclusions.

2. Literature review

2.1 Introduction

2.1.1 Childhood and lifetime outcomes

The aim of this light touch review is to identify those factors which have been shown to have a bearing on child wellbeing in the UK, and to highlight certain others where the evidence base has not yet been established or is inconclusive. It thus provides a basis for the selection of factors included in the empirical analysis in Chapter 3.

Cognitive, behavioural and educational outcomes experienced in early childhood have been linked to later childhood and adult outcomes. Assessments at entry to primary school have been associated with subsequent school achievement, even when controlling for other background family factors (Duncan et al. 2007; Feinstein and Duckworth, 2006). Early childhood assessments have been related to adult academic attainment and occupational outcomes (Caspi et al., 1998; Feinstein and Bynner, 2004).

It is therefore important that policy-makers and those who work with children and families can identify and support children at increased risk of worse outcomes.

This review summarises recent research on risk, promotive and protective factors for child and adolescent outcomes. *Risk factors* are those associated with poorer outcomes, for example lower educational attainment and wellbeing; *promotive* factors are those associated with better outcomes, such as fewer behaviour difficulties, greater cognitive skills; and *protective* factors are those which are particularly or solely beneficial for disadvantaged children, and thus reduce the gap between those who come from more privileged and less privileged backgrounds. These three key terms structure the rest of this chapter and are used to organise the analysis that follows.

The review starts with Bynner's 2001 overview of risk and protective factors for social exclusion. It then builds on his work by examining more recent research on risk and protection. Here we focus on research looking at multiple risk and protective factors, selecting only those using UK data. Previous research has either treated risks individually or it has made an index of risks. The advantages and disadvantages of the two approaches are described in Box 2.1.

There was a special emphasis on research using MCS or ALSPAC data. As well as identifying relevant factors from the research, we were concerned to ascertain if findings identified as salient in earlier analysis still held at age 7. Large longitudinal studies such as the MCS and ALSPAC serve as valuable resources for research into risk and protective factors. Much extant evidence comes from research using US surveys of children; but the MCS and ALSPAC provide data on large UK samples. They contain a rich set of measures of the child's experience across a number of domains, which means they allow for the testing of previously identified risk and protective factors as well as investigation and identification of new ones. Table 2.1 describes the samples and outcomes of the research papers cited here.

2.2 Risk factors

Risk factors are those that increase the chances of a child experiencing poor outcomes. These can occur in various domains. That is, they can be related to the child's own characteristics, such as their experience of a disability, or to the child's family, such as parents' occupational position, or parenting behaviours. A child's school experience can present risks for their educational or wellbeing outcomes, for example through their peer groups, the quality of their education or through their experience of bullying; and similarly, disadvantaged neighbourhoods or those without good amenities can result in poorer outcomes. There is a lot of consistency in the risk factors that researchers use to predict poor outcomes in childhood, especially those factors that are found within the family domain.

Box 2.1 Individual versus multiple risk

Research on risk, promotive and protective factors sometimes constructs indices of multiple risks as a measure of a child's exposure to combinations of factors that may impact on their wellbeing.

Such indices may be computed by using simple measures of whether or not a risk is present, according to a particular threshold of 'risk' (for example, being in poverty versus not being in poverty, being read to less often than once a month versus more often etc.). The risks are then added up (e.g., Gutman et al., 2002; Sabates and Dex, 2012). Another method is to use factor analysis to create factor scores that combine the risk variables. This method accommodates measuring degrees of risks, such as number of siblings from 0 upwards, or the rank from 1 to 10 of the level of deprivation of an area, rather than a simple distinction between risk or no risk. Factor scores also take into account the fact that these variables are likely to be correlated with each other, that is some are more likely to be present when others are (Burchinal et al., 2006; Hall, Sammons, Sylva, Melhuish, Taggart, Siraj-Blatchford, and Smees, 2010).

There are pros and cons of using indices of multiple risks rather than evaluating risks individually.

Using an index of risk makes it possible to establish whether the number of risks to which children are exposed has an effect on their outcomes (e.g. Sabates and Dex, 2012). It also makes it possible to examine whether there is a level at which each additional risk has an especially large effect, or where the impact levels off.

Attempting to identify protective factors requires looking at the interaction between potential protective factors and risk factors on outcomes. It is difficult to use a number of individual risks for such interactions, so an index provides a single summary variable to interact with the potential protective factors.

The downside of using a multiple index is that it does not allow for identification of which individual risks have effects on children's outcomes. If it is important to know which risks are important for different outcomes, this is an obvious limitation. Indices therefore are generally used only when the interest is solely in the effect of the amount of risk exposure or in identifying protective factors.

2.2.2 Child risk factors

Low birth weight. Children who are underweight at birth (for their gestational age) are more likely to have learning difficulties or behavioural problems, and to have delayed language development. These outcomes may be affected by the increased risk of long-term illnesses that are related to low birth weight (Bynner, 2001).

Poor diet. Children with inadequate diets are more likely to have poor visual-motor skills and do less well in cognitive assessments such as design copying, vocabulary and reading (Bynner, 2001).

Difficult temperament. Having temperamental difficulties early in childhood is related to other risks such as hyperactivity and impulsiveness (Bynner, 2001). Atzaba-Poria, Pike and Deater-Deckard (2004) found that less adaptive temperament, defined as high levels of emotionality, activity, and shyness, and lower levels of sociability, was related to problem behaviours at later ages.

Early behaviour and cognition. Unsurprisingly, behaviour problems and poor cognitive skills in early childhood are related to poorer behaviour, cognitive, and academic outcomes later in life (Bynner, 2001). Burchinal, Roberts, Zeisel, Hennon and Hooper (2006) found that among early cognitive skills, language development was especially related to later behavioural and cognitive outcomes.

2.2.3 Family risk factors

The bulk of consistently identified risk factors are in the family domain. Most studies of risk include indicators of income or poverty, but other aspects of family structure, circumstances and functioning have been found to relate to outcomes throughout childhood. Unless otherwise specified, reference to parents, such as parental education level, includes either the mother or father.

Income and poverty. Economic risk factors are among the most often identified, and are highly related to other risk factors children are exposed to. Low income and poverty are strongly related to cognitive and educational outcomes. They are less strongly related to behavioural outcomes (Bynner, 2001). Income has been found to be related to cognitive and behavioural outcomes in the MCS (Ermisch, 2009; Sabates and Dex, 2009; Washbrook, 2010). Kiernan and Huerta (2008) found that economic deprivation, which comprised income poverty, financial difficulties and housing tenure, and maternal depression were related to lower scores on a test of school readiness and externalising behaviours.[2] Children growing up in poor families have also been found to have higher levels of behaviour problems (Hobcraft and Kiernan, 2010). Persistent poverty may have an especially strong relationship to cognitive and behavioural outcomes (Kiernan and Mensah, 2009; Dickerson and Popli, 2012).

[2] Externalising behaviour problems are those that are acted out, such as conduct problems, delinquency, peer conflict, and physical aggression. Internalising behaviour problems are those directed towards the self and include emotional problems, anxiety, and somatic complaints.

Living situations and material deprivation. Material deprivation and disadvantaged living conditions are clearly related to income. However, they have also been found to have an independent association with children's outcomes. Material deprivation is the inability to afford necessary or basic items, and has been linked to cognitive and educational outcomes (Bynner, 2001). Living situation includes living in a crowded home or in rented accommodation or social housing.

Low social class. Having parents in unskilled manual occupations has been associated with poorer cognitive outcomes (Bynner, 2001).

Family structure and breakdown. Children of single parents and those whose parents' relationships break down tend to have poorer behavioural outcomes, though family structure and breakdown are not strongly related to cognitive outcomes (Bynner, 2001). Gerard and Buehler (2004) found that children living with lone parents (whether single, separated or divorced) had more conduct problems than children living with two parents.

Parental education. Less highly educated parents tend to have children with poorer cognitive, academic, and behavioural outcomes (Flouri, Tzavidis, and Kallis, 2010; Hobcraft and Kiernan, 2010). Washbrook (2010) also found that both mothers' and fathers' education contributed independently to the difference in cognitive scores and behaviour problems between children from families with low incomes and those from families with higher incomes.

Low parental interest in education. Children of parents who do not show interest in their education, are not involved with their schools, and have low aspirations for their children's KS1 (age 7) attainment have poorer educational outcomes (Bynner, 2001).

Poor parent-child relationships. Less emotional closeness among family members has been found to be related to greater levels of conduct problems (Gerard and Buehler, 2004), as have low parental warmth and positivity (Atzaba-Poria et al., 2004). Parent-child conflict and low levels of parental warmth have also been found to be related to behaviour problems and poor developmental progress in young children (Hobcraft and Kiernan, 2010).

Parental mental health problems. Children are more likely to have poor outcomes if they have parents with mental health problems (Bynner, 2001). Children whose parents are depressed are more likely to experience declines in emotional wellbeing through adolescence (Gutman, Brown, Ackerman and Obolenskaya, 2010) and have been found to have more behaviour problems (Hobcraft and Kiernan, 2010; Kiernan and Huerta, 2008). Parental depression may be related to cognitive outcomes, but the association is not as strong as it is for behaviour (Kiernan and Mensah, 2009; Washbrook, 2010).

2.2.4 Peer factors

Peer rejection. Gerard and Buehler (2004) found that adolescents who did not feel supported and accepted by their peers had more problem behaviours. They also found that children who reported having trouble getting along with peers had more conduct problems.

2.2.5 School and neighbourhood risk factors

Characteristics of the schools children attend and the neighbourhoods in which they live may also increase their risk of poor cognitive, educational, and behavioural outcomes.

Low stream or remedial schooling. Bynner (2001) named lack of pre-school experience and being in low stream or remedial education as individual school experiences that relate to worse outcomes. Children with special educational needs tended to experience declining wellbeing through adolescence (Gutman et al., 2010).

School detachment. Gerard and Buehler (2004) found that pupils who did not feel attached to their schools—who reported feeling they had trouble getting along with teachers, felt they were treated unfairly, and did not feel safe or happy in school—had poorer conduct.

Student poverty. School characteristics that act as risk factors include having a large proportion of pupils with parents with lower social status jobs, being in an urban area, or having a catchment area containing a high proportion of social housing (Bynner, 2001).

Neighbourhood deprivation. Living in an area with high levels of material deprivation has been found to be related to both lower cognitive scores and higher levels of behaviour problems (Washbrook, 2010).

2.2.6 Stressful life events

The stressful life events encountered by a child or his/her family are also risk factors for their outcomes. Stressful life events range from the trivial to severe, and from desirable to undesirable. For example, moving home may be stressful even if it is to a more desirable location. More traumatizing events include the death of a parent or family dissolution. Although stressful life events may have more of an impact on parents, both major and minor events have been shown to contribute to variation in children's wellbeing (Armstrong and Boothroyd, 2008; Ford et al., 2007; Well and Evans, 2003).

2.3 Promotive/protective factors

Promotive factors are those that are related to more positive outcomes for all children, regardless of their level of exposure to any of the risk factors discussed above. Protective factors, on the other hand, are those that are related to positive outcomes more strongly or only for those who have been exposed to risk factors. They have little or no association with better outcomes for children who have low risk exposure. In technical terms, promotive factors are associated with children's outcomes but have no statistically significant interaction with risk, while protective effects interact significantly with risks.

In order to identify protective factors, therefore, researchers have to test the interaction between promotive variables and a risk or risks, in relation to any given outcome. Few studies in fact do this, and there is therefore less information on protective factors than there is on risk or promotive factors.

2.3.1 Child factors

Positive self-regard. Gerard and Buehler (2004) found that positive self-regard acted as a protective factor with regard to multiple risks for a child's conduct problems and depressed mood. Self-confidence has also been found to interact with poverty. Research suggests that for children with high levels of confidence there was no relation between poverty and externalising and internalising behaviour problems, but for those low in confidence, poverty was associated with greater behaviour problems (Li, Nussbaum and Richards, 2007).

Cognitive ability and behaviour. Cognitive and behavioural outcomes are related to each other and may also serve as protective factors. Adverse life events have a smaller impact on the behaviour of children with higher non-verbal ability than they do on children who score lower on this ability measure (Flouri et al., 2010).

2.3.2 Family factors

Consistent discipline. Gutman, Sameroff and Eccles (2002) looked at potential promotive and protective factors as they related to a multiple risk index. They found that consistent discipline was protective for average educational attainment and absences from school. A lower level of democratic decision-making at home was a protective factor for average educational attainment and maths scores. Both were protective in that they were related to better outcomes for pupils with a high number of risks but were not related to outcome differences for those with a low number of risks. Ermisch (2009) found that a more structured parenting style was promotive in that it related to lower levels of problem behaviour.

Parenting. Burchinal et al. (2006) found that positive maternal teaching style and a stimulating and responsive home environment acted as protective factors for mathematics test scores and as a promotive factor for reading, social skills and behaviour. Mothers' and fathers' reading to the child has been found to be related to cognitive scores (Washbrook, 2010) and behaviour (Ermisch, 2009), and taking the child to the library has been found to be related to cognitive and behavioural outcomes (Ermisch, 2009).

Family cohesion. Children who reported having positive relationships with their parents and whose parents reported more positive feelings about them were less likely to experience decline in behavioural and school wellbeing over their adolescence. Parent-child relationships may therefore be promotive for child wellbeing. The warmth of mother-child relationships has been found to be related to cognitive scores and, more strongly, to behaviour (Washbrook, 2010). Parents' positive feelings for their children also had a protective effect for children's social wellbeing, as they were related to greater wellbeing among high risk children but not low risk children (Gutman et al., 2010).

Parental involvement in school. This may be a protective factor for children of parents with low levels of education (Dearing, McCartney, Weiss, Kreider and Simpkins, 2004).

2.3.3 School and neighbourhood factors

High quality child care. Burchinal et al. (2006) found that child care interacted with risk on mathematics score and behaviour problems. Geoffroy et al. (2010) examined interactions between maternal education and child care experience on tests of school readiness in a sample of Canadian children aged 6 and 7 years. They found a significant interaction. Children of mothers with low levels of education who experienced some form of care outside the home had higher than average school readiness scores, while for children of more educated mothers there were no differences by child care experience.

Peer support. This was found to be protective for mathematics test scores, in that for children with high levels of support from peers the number of risk factors had little relation to their test score, while for those with low peer support, more risks were related to lower scores (Gutman et al., 2002).

We can see a summary of all these factors as identified in the existing literature in Table 2.1.

Table 2.1. Descriptions of sample and outcomes of research articles

Citation	Sample	Outcomes
Armstrong, M. I. and Boothroyd, R. A. (2008).	USA, 125 daughters of women participating in welfare reform programme, ethnically diverse	Emotional wellbeing (Center for Epidemiologic Studies Depression Scale (CES-D), Pediatric Symptom Checklist (PSC) / Colorado Symptom Index (CSI), self-report of perceived mental health need)
Atzaba-Poria, N., Pike, A., and Deater-Deckard, K. (2004).	England, 125 families from the Family and Child Behaviour Study, close to half white and half Indian, 7-10 years old	Problem behaviours, externalising and internalising (Child Behaviour Checklist)
Burchinal, M., Roberts, J. E., Zeisel, S. A., Hennon, E. A., and Hooper, S. (2006).	USA, 75 families using community child care in pre-school years, all African American	Academic skills (Woodcock-Johnson Broad Reading and Broad Math) and social skills (Social Skills Rating System) assessed each summer after the first four years of school
Dearing, E., McCartney, K., Weiss, H. B., Kreider, H., and Simpkins, S. (2004).	USA, 167 families from the School Transition Study and the Comprehensive Child Development Program, ethnically diverse, followed from kindergarten to age 5	Literacy (Woodcock-Johnson revised)
Ermisch, J. (2008).	UK, families from the MCS, white children only, up to age 3 years	Cognitive development (British Ability Scales and Bracken School Readiness Assessment), behaviour problems (Strengths and Difficulties

Citation	Sample	Outcomes
		Questionnaire) and parent-child relationship (Pianta)
Flouri, E., Tzavidis, N., and Kallis, C. (2010).	UK, 4748 families from the MCS, ethnically diverse, up to age 3 years	Behaviour problems (Strengths and Difficulties Questionnaire Total Difficulties)
Ford, T., Collishaw, S., Meltzer, H., and Goodman, R. (2007).	GB, subsample of 2,586 children from the British Child and Adolescent Mental Health Survey, aged 11+	Psychopathology (Strengths and Difficulties Questionnaire from multiple reporters)
Geoffroy, M. C., Cote, S. M., Giguere, C. E., Dionne, G., Zelazo, P. D., Tremblay, R. E., Boivin, M., and Seguin, J. R. (2010).	Canada, 1863 infants born in Quebec in 1997/1998 and followed until 7 years of age	Cognitive scores (Lollipop Test for School Readiness, Peabody Picture Vocabulary Test Revised, Number Knowledge Test, and Kaufman Assessment Battery for children)
Gerard, J. M., and Buehler, C. (2004).	USA, 5070 families from the National Longitudinal Study of Adolescent Health, ages 11 to 18, ethnically diverse	Conduct problems and depressed mood (CES-DC)
Gutman, L. M., Brown, J., Ackerman, R., and Obolenskaya, P. (2010).	UK, families from ALSPAC	Child wellbeing a a number of domains: emotional, behavioural, social, and school
Gutman, L. M., Sameroff, A. J., and Eccles, J. S. (2002).	USA, 837 families from the Maryland Adolescent Development in Context study, all African American, children 11 to 16 years old	School outcomes (grade point average and number of absences) from elementary, middle, and high school
Hall, J. E., Sammons, P., Sylva, K., Melhuish, E., Taggart, B., Siraj-Blatchford, I., and Smees, R. (2010).	UK, 2899 children from the Effective Provision of Preschool Education (EPPE) studies, ethnically diverse, assessed at 3 and 5 years of age	Cognitive development (British Ability Scales)
Hobcraft, J., and Kiernan, K. E. (2010).	England, 8430 families from the MCS, ethnically diverse, up to age 5 years	Developmental progress (Foundation Stage Profile), behaviour problems (Strengths and Difficulties Questionnaire), and health status
Kiernan, K. E., and Huerta, M. C. (2008).	UK, 13877 families from the MCS, ethnically diverse, up to age 3 years	Cognitive development (Bracken Basic Concepts) and behaviour problems (Strengths and Difficulties Questionnaire, internalising and externalising)
Kiernan, K. E., and Mensah, F. K. (2009).	UK, 14777 families from the MCS, ethnically diverse, up to age 3	Cognitive development (Bracken Basic Concepts) and behaviour problems (Strengths and Difficulties

Citation	Sample	Outcomes
	years	Questionnaire)
Li, S. T., Nussbaum, K. M., and Richards, M. H. (2007).	USA, 263 children, all African American, in grades 5 to 8	Externalising (Child Behaviour Checklist parent form, Juvenile Delinquency Scale) and internalising (Child Behaviour Checklist, Children's Depression Inventory, How I Feel scale) behaviours
Sabates, R., and Dex, S. (2009).	UK, families from the MCS, ethnically diverse, up to age 5 years	Cognitive development (British Ability Scales) and behaviour problems (Strengths and Difficulties Questionnaire)
Washbrook, E. (2010).	UK, 15460 families from the MCS, ethnically diverse, up to age 5	Cognitive development (British Ability Scales), behaviour problems (Strengths and Difficulties Questionnaire), general health rating, Body Mass Index
Wells, N. M., and Evans, G. W. (2003).	USA, 337 children in grades 3-5 (mean age 9.2), rural areas, 95% white	Psychological distress (Rutter Child Behavior Questionnaire) and Global Self-Worth (Harter Competency Scale)

2.4 Areas of emerging interest

There is a large body of research on risk factors related to children's cognitive, academic, and behavioural outcomes. It provides considerable consistency in identifying factors that may be risks for certain outcomes. However, less is known about protective factors. This is largely because they are more difficult to identify, as doing so involves testing the interactions of potential protective variables with risk variables or multiple risk indices. So far, however, where research has addressed the issue of whether aspects of parenting moderate the impact of poverty, it has found little evidence that specific promotive factors are in fact protective. It is valuable to revisit the issue of protective factors to ascertain if there are specific areas where intervention could reduce the gap in children's outcomes between disadvantaged and advantaged families, over and above improving children's outcomes in general.

There are also some potential risk, promotive and protective factors that have seldom been investigated but may be of interest and are measurable using the MCS. Much of the earlier evidence on parent-child relationships and on parenting style was based on mothers only. While there is substantial evidence on the family factors associated with children's outcomes, this tends to include information on both mothers and fathers without disentangling the individual contribution of the two parents in households where both are present. It is of interest in its own right whether fathers' characteristics and behaviours make independent contributions to children's cognitive, educational or behavioural outcomes. It could potentially inform our understanding of children's resilience or inform whether parenting support should be targeted on different parents or on both of them together.

The analysis of the MCS in this report explicitly explores the characteristics and behaviours of fathers in couple-parent families and investigates whether these add to our understanding of risk and promotive factors in different children's outcomes.

Studies have found evidence for associations between particular risk factors and specific outcomes. They have been interested in cognitive, behavioural and health outcomes, as well as measures of social and emotional wellbeing. However, it is not always clear whether the risk factor is limited to the outcome under consideration or whether it may apply across a range of outcomes. The MCS is rich in measures of child wellbeing and attainment. The analysis of the MCS in this report investigates systematically whether the same set of factors are associated with a series of different cognitive outcomes. In addition, by utilising linked individual school records, it can ascertain whether these same potential risk and promotive factors are associated with educational performance measured at KS1. It also measures the association of this same set of potential risk and promotive factors with behaviour problems. Importantly, this enables the analysis to demonstrate the extent to which risk factors are specific to particular outcomes or apply more generally.

Similarly, the ALSPAC analysis exploits a range of measures of child wellbeing: Key Stage 3 (age 14) and Key Stage 4 (age 16) scores, and emotional, behavioural, social and school wellbeing. By these means it is possible to disentangle whether stressful life events are linked only to certain outcomes or whether they have more general impacts.

Both analyses alert us to the possibility that it may be important to look at specific areas of wellbeing and ability or competence in order to ascertain potential areas of intervention and ways of improving the welfare of children.

2.5 Conclusions

The MCS and ALSPAC are valuable resources for research into risk and promotive factors in the UK. Most of the existing evidence from MCS is on influences up to the age 5 survey. The two studies contain a very large number of measures across a number of domains, which means they allow for the testing of previously identified factors as well as investigation and identification of new ones. The analysis in this report takes existing research further for both studies.

Specifically, there are three important aspects of the MCS analysis:

a) The analysis looks systematically across five outcomes in the MCS, exploring the same set of risk and protective factors for each. These five outcomes relate to educational attainment and include administrative data recently linked with the MCS survey data, with three distinct measures of cognitive ability and KS1 combined scores, alongside a measure of behavioural difficulties.
b) It explores whether there are protective factors for children in disadvantaged circumstances by testing for each risk and protective factor identified for any outcome whether its association differs between children living in or out of poverty.

c) All outcomes are measured at age 7, and the potential risk and protective factors are measured at time points earlier than age 7 to ensure the analysis is as robust as possible.

This analysis is reported next, in Chapter 3.

The ALSPAC analysis explores the role of specific stressful live events in different periods of childhood on a range of teenage outcomes. Stressful life events have been shown to be relevant to children's outcomes, but the following aspects of the current analyses add to past research:

a) The analyses examine the impact of specific life events, as reported by the children's mothers, which have been specially coded for this study.
b) They explore the potential impact across six domains of adolescent wellbeing and educational attainment;
c) They illustrate the extent to which stressful events have enduring or more temporary impacts across the different domains.

This analysis is reported in Chapter 4.

3. Family stressors as predictors of children's outcomes at age 7

3.1. Family stressors and child cognitive ability, educational attainment and behaviour at age 7

3.1.1 Aims and approach

This chapter examines how MCS children's KS1 attainment, cognitive functioning and behaviour at age 7 are related to earlier childhood circumstances.

This analysis aimed to identify:

- which child characteristics and experiences, family factors, parental characteristics and behaviours, and local neighbourhood factors were stressors, associated with worse outcomes for children at age 7, or promotive factors, associated with better outcomes for children at age 7,
- whether any of these factors were protective in that they reduced the gap between advantaged and disadvantaged children at age 7.

To do this, the analysis drew on the existing research covered in Chapter 2.

Since many factors, both negative and positive, are associated with others (for example, lone parenthood is associated with family poverty; and mothers with higher qualifications tend to read to their children more often), finding a simple association between a risk factor and an outcome can only provide very limited information about the risks families face or possible points of intervention.

Using statistical analyses, the study therefore attempted to isolate which factors were risk factors (predictive of worse outcomes), and which factors were promotive factors (predictive of better outcomes), once all the others had been taken into account. Conversely, it also aimed to reveal which factors no longer had an association with any given outcome once other relevant characteristics were considered. For example, were children in lone parent families still predicted to do worse, once family poverty, and other characteristics and behaviours were controlled? Did reading still have a beneficial effect once mothers' qualifications were held constant? Box 3.1 provides more information about the methodological approach.

Children's outcomes are clearly heterogeneous, as are the influences on them. By looking at a diversity of outcomes, the analysis was able to identify the factors associated with specific aspects of child wellbeing. This clarifies where a risk factor – and a subsequent intervention – can and cannot be expected to make a difference. It may also allow greater insight into the mechanisms underlying the observed associations. For example, an association between a father's lack of basic literacy skills and a child's worse verbal skills (other things being equal), may tend to suggest that the factors indicated by poor basic literacy skills, such as less role modelling of reading, shortage of reading matter, lack of direct support for the child's reading, may be at play. But an association additionally with child's maths skills may indicate that the mechanism may not be that simple.

The potential mechanisms underlying observed associations in this analysis remain suggestive, and are intended to be informed by practice to further develop understanding of the relationships and the appropriateness of particular interventions. The analysis does benefit, though, from being able to draw on and consider simultaneously a particularly rich set of family, parental and contextual factors contained in the MCS, in order to explore their relationship separately and jointly to age 7 outcomes. Moreover, all the potential risk and promotive factors were measured *before* the age 7 outcomes. This makes us more confident that the associations are reliable and that the risk factors are influencing the outcomes.

3.1.2 Data

The MCS is a survey of over 19,000 children born in 2000-2001 who are followed over time. The study offers a great deal of information on children's family background, and provides a range of measures of their wellbeing at age 7. Box 3.1 provides further details on the study. This report focuses on the approximately 9,000 MCS children who were born in England and who provided data at all four surveys.

Box 3.1: The Millennium Cohort Study

The Millennium Cohort Study is a study of 19,517 children born across the UK at the beginning of the 2000s, who are being followed over time.

The sample was based on child benefit records. Children in the three smaller countries of the UK were intentionally oversampled, as were those living in areas of high ethnic minority settlement (in England only) or in areas of economic disadvantage.

The children's families were first surveyed when the MCS babies were about 9 months old. Follow-ups have taken place at ages 3, 5 and 7 years.

Interviews are carried out with both the main carer (usually the mother[3]), and the main carer's co-resident partner (usually the father[4]). Information is collected from parents on the child's activities, health, behaviour and development as well as on a range of parenting behaviours. Parents are also asked about their financial position, as well as their own health, and a small number of questions on their perceptions of their environment.

Assessments of the children's cognitive ability have been carried out by specially trained interviewers since age 3. These assessments are selected to measure different aspects of cognitive functioning and to be appropriate to the age of the child.

Consent to link to education records was sought at the age 7 survey and was obtained from the majority of parents. This has enabled linkage to National Pupil Database records in England, providing direct information on KS1 results for children in consenting families.

The measures of cognitive ability, the linked KS1 data, and the ability to measure risk and promotive factors at younger ages than the outcome measures, makes the MCS a particularly valuable study for investigating risk factors for children's outcomes.

[3] At age 5, 96% of main respondents in MCS were the natural mothers of the cohort child. Of the remainder, 3% were fathers and under 1% were neither mother nor father. We refer to main respondents as "mothers" throughout for simplicity.

[4] At age 5, 91% of partner respondents to MCS were the natural fathers of the cohort child and an additional 4% were step-fathers. Three per cent were mothers. We therefore refer to partner respondents as "fathers" throughout.

3.1.3 Children's outcomes

The analysis investigated five child outcome measures at age 7. Children of this age are highly heterogeneous in their skills, abilities and behaviour. The outcome measures were intended to reveal different aspects of children's capacities at this age, which can in turn be highly relevant for their future progress and later childhood and adult outcomes. By exploring different sorts of outcome measures, the analysis was also able to ascertain whether associations with different aspects of family context or parenting varied depending on the outcome under consideration.

The five outcome measures examined were:

- non-verbal cognitive skills
- verbal cognitive skills
- maths skills
- KS1 attainment
- behaviour.

Non-verbal cognitive skills are measured through the British Ability Scales (BAS) Pattern Construction measure. In this assessment the child constructs a design by putting together flat squares or solid cubes with black and yellow patterns on each side. The test is timed and the score is based on accuracy and speed. A higher score represents greater non-verbal cognitive ability.

Verbal skills are measured through the BAS Word Reading assessment. The children are shown words on cards and asked to read them out. The score is based on the number and difficulty of words they manage to read, where a higher score represents greater verbal ability.

Maths skills are measured by the National Foundation for Educational Research Progress in Maths assessment. Children are given a variety of mathematical problems covering numbers, shape, space, measures and data handling. Their score is based on the number of problems they manage to complete with a higher score representing greater maths ability.

KS1 attainment is measured through performance at age 7. This measure derives from educational records from the National Pupil Database linked in to the MCS survey data. The MCS children completed KS1 during the 2007-2008 school year. The overall KS1 score is based on a combined teacher assessment of attainment in reading, writing, speaking and listening, maths and science, with higher scores representing higher attainment.

Behaviour is measured using the Strengths and Difficulties Questionnaire, which comprises responses by the parent to a series of 25 questions and is used to evaluate emotional-behavioural difficulties. The score for difficulties can range from 0 to 40, and a higher score means more difficulties.

These are all standard measures and widely used in the assessment of children's development.

3.1.4 Analysis

Using a series of statistical analyses, over 40 potentially predictive factors measured before the child was aged 7 were investigated for their relationship with these five, age 7 outcomes. These factors are predominantly those highlighted in Chapter 2 as being supported by current evidence, but also include additional measures of father's characteristics and parenting, that have not typically been evaluated. The full list, including the survey at which it was measured (age 5 survey in most cases), is given in Annex Table 1.

Both r*isk factors* and *promotive factors* were grouped under the following headings.

Child characteristics, which covers whether the child has a longstanding illness or disability and the amount of time the child spends watching TV.

Family characteristics, which covers factors such as the length of time the mother has spent as a lone parent, the number of brothers and sisters the child has, or whether the family is poor.

Parental interactions with the child, which includes factors such as whether the child's mother or their father smokes, the extent of rules and their enforcement, child care by grandparents or other relatives and mother's and father's report of how close they feel to the child. Note that *father characteristics* are explored here.

Child's peer relationships, which includes factors such as how often the child sees friends outside school.

Parental social support and area characteristics*,* which covers factors such as whether the child's mother has friends in the area, whether grandparents help out financially – or would if needed, whether the mother regards it as a good area for raising children.

The rest of this chapter is structured into sections relating to the findings for these five different sorts of child, family, parental, and contextual factors, looking at risk and promotive factors in turn in each section.

The analyses had three main stages, which are outlined further in Box 3.2. We first looked at the association of each factor individually with the outcome, with only a small set of controls (see Box 3.3 below). We then entered all the variables that had significant associations with the outcome together into a full model to investigate whether their associations remained significant when taking into account all the other factors. We repeated this process for each of the five outcomes. Thirdly, we assessed whether any of the risk/promotive factors that were identified in the second stage were protective, that is whether they were more relevant for disadvantaged than for non-disadvantaged children.

Box 3.2: Analysis and interpretation

Following the review of relevant risk and promotive factors outlined in Chapter 2, those that can be measured in the MCS are included in the analysis alongside some other selected factors hypothesized to have an influence, and for which the evidence is less clear.

The analysis then proceeds in three phases.[5] First, regression analysis is used to assess whether each of these factors is associated with any or all of the five outcome measures, when considered one by one, and only holding constant a small set of controls (see Box 3.3). That is, a model is estimated for every factor for each of the five outcomes. Regression models are estimated for all children, but fathers' behaviours and characteristics are examined in analysis of only those children living in couple-parent families. Only those factors which are statistically significantly associated with any outcome are included in the full model for the outcome.

Second, further regression analysis estimates the association between each of these factors and the five outcomes when the factors are considered jointly. That is, a model is estimated for each of the five outcomes, which includes the full set of all the significant factors for that outcome. Again there are models for all children which exclude fathers' characteristics and a further set of analyses using couple-parent families only, which include fathers' characteristics and behaviours. Those factors that remain significantly associated with the outcome in this full model can be deemed truly to constitute risk factors or promotive factors, since they are estimated net of any confounding influences.

Classifying a factor as either a 'risk' or 'promotive' factor is a description of statistical patterns of association. That is, *risk factors,* should be interpreted as those that are associated with, or predictive of, worse outcomes; while *promotive factors* should be interpreted as those which are associated with, or predictive of, better outcomes on a given measure.

Such a classification is not intended to indicate a causal relationship between the factor and the associated outcome. In many cases the factors may be indicators or proxies for a set of unmeasured characteristics. For example, maternal educational qualifications could be considered as proxying for a range of unmeasured factors that might influence children's outcomes, such as the mother's skills and knowledge, which may inform parenting; cognitive ability, which may be transmitted directly to the child; self-esteem, which may influence confidence in parenting; or attitudes to education and educational socialization, which may influence the context in which children are growing up.

The associations demonstrated by the statistical analysis can therefore only be suggestive of mechanisms underlying the relationships. Nevertheless, given the range of factors included in the full models, some possible explanations for the associations are already netted out. For example, since we control for mothers and fathers reading to the child, and for family poverty, we can assume that the association of maternal qualifications with children's outcomes is not an indirect indicator of either of these family characteristics, both of which vary with levels of parental qualifications. Instead, the route by which qualifications influence children's outcomes is more plausibly associated with the knowledge, skills, self-esteem, socialization or social networks they might imply, and that we have not measured directly.

Third, having classified which factors are shown by our statistical analysis to be significantly associated with a given outcome, we then consider which of these can be seen to be *protective. Protective factors* reduce the gap in outcomes between disadvantaged and advantaged groups. Policy-makers seeking to raise the cognitive function and educational attainment of all children will be interested in any risk or protective factors. Attempts to address the differential outcomes of disadvantaged groups specifically, and to promote social mobility, will be particularly informed by understanding which factors are protective. We therefore use further statistical analyses which investigate whether there are any significant interactions between each of the factors and family poverty.

[5] Given the number of estimations involved and the consequent number of tables, these have not been included in an annex to the report, but are available from the authors on request.

Box 3.3: Control variables included in the analysis

Note that a simple set of *controls* was included in all analysis. Control variables are not considered to be potential risk or protective factors, but are commonly associated with differences between children in their cognitive or behavioural scores, that need to be taken into account in analysis. They comprised:

- age
- sex
- birth weight
- ethnic group, and
- whether the child had experienced developmental delay at nine months.

3.2 Child characteristics

We look first at children's characteristics. These characteristics or practices may themselves be risk factors, associated with worse cognitive ability, KS1 attainment or behavioural difficulties. In this section we consider two such child characteristics. First is the presence of a long-term illness or disability. Child disability, as captured here, is heterogeneous. It encompasses both special educational needs (SEN), as well as physical disabilities and emotional-behavioural disorders. It has been shown to be related to different aspects of cognitive ability, educational performance and behaviour. This is a consequence not only of the disability itself but the barriers to education that these children and young people frequently encounter.

Second, we consider how often a child watches television. Clearly this measure does not capture the content of the programmes watched, and does not represent any assumptions about the extent to which learning may be aided or impeded by television *per se*. It acts as an indicator of time that is not spent on other activities, whether with parents, friends, siblings or alone. It is thus included as a potential risk factor. When other family and parental characteristics are not held constant, greater levels of television watching may act as a proxy for a range of family characteristics and circumstances that have been associated with poorer outcomes, such as less direct activity with the child, less strict enforcement of rules, and less play with other children. In the full analysis, however, all these factors are controlled, meaning that the amount of TV watched is no longer picking up on these other aspects of parenting or family context.

Table 3.4 shows in the first of each pair of columns whether the two child risk factors are associated with poorer outcomes across the five measures, when only controlling for the basic set of controls. The second of each pair of columns indicates whether the associations are maintained when all other factors considered are held constant – or their influence is netted out.

Table 3.4: Child risk characteristics and their association with child's cognitive skills, behaviour and educational attainment

Risk Factor	Non-verbal skills		Verbal skills		Maths skills		Behaviour		KS1 attainment	
	Simple relation-ship?	When other factors included?	Simple relation-ship?	When other factors also included?	Simple relation-ship?	When other factors also included?	Simple relation-ship?	When other factors also included?	Simple relation-ship?	When other factors also included?
Child has a longstanding illness or disability	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
The more TV the child watches	**Yes**	No	**Yes**	**Yes**	**Yes**	No	**Yes**	No	**Yes**	No

Note: "Simple relationship" is the association net only of the small group of controls. "Relationship when other factors included" is the association of the risk factor with the age 7 outcome net of all other risk and promotive factors as well as the controls.

We can see from Table 3.4 that child disability is significantly associated with poorer outcomes across all five measures. Moreover, this association remains when all other risk and protective factors are taken into account.

We also see that television watching is significantly associated with worse outcomes across all five measures, when looking only at the simple relationships. However, when controlling for all other factors, increased amounts of TV viewing are only associated with worse verbal skills.

This means that, in general, it is seven-year-olds in families facing multiple challenges that tend to spend more time watching television. Once these other risk factors are held constant, we see that greater amounts of television watching are only associated with verbal cognitive ability, and not with other aspects of cognitive ability, educational outcomes or behaviour. It is unlikely that it is television content itself that is the underlying mechanism for this association with poorer verbal skills. While it is hard to infer the precise mechanism, greater hours of television may represent less time spent on activities that support verbal skills. But the lack of association with KS1 attainment suggests that it does not affect general learning environment.

3.3 Family characteristics

When turning to family characteristics we cover a wide range of aspects of family structure and family context that have been well-attested in the literature as having positive or negative associations with child educational, behavioural or cognitive outcomes.

3.3.1 Family risk factors

We first consider 11 family characteristics that can be considered as potential risk factors. These comprise:

- family structure: whether mother was a lone parent at a previous survey, higher number of siblings in the family, changes in the number of siblings
- maternal characteristics: mother's difficulty in basic skills (reading and maths), maternal depression, maternal illness or disability
- family financial circumstances: family was in poverty at a previous survey; family was in receipt of means-tested benefits, family had difficulty affording items, and family was behind with bills.

Each is explored for any association with cognitive skills and behaviour at age 7, both on its own and after controlling for all the other risk and promotive factors.

Lone parenthood is associated with high risks of family poverty, which is itself widely recognized as being associated with worse outcomes for children at different ages and on a range of measures (Ermisch, 2009; Sabates and Dex, 2012; Washbrook, 2010). Lone parenthood may also represent a 'risk' because one parent is necessarily constrained in the amount of activities that she or he can carry out with a child, whereas two parents can offer greater flexibility and share parenting and caring roles. In addition, lone parenthood has

been found to be a risk factor through the disruption and family stress that is typically associated with the breakdown of a relationship.

A larger number of siblings is also linked in the literature to children having worse outcomes. This is often interpreted as an issue of parental investment in their children: the more children they have, the less likely any one is to receive particularly large parental inputs. It is also possible that larger numbers of children detract from any one child's learning and cognitive development. Having siblings to play with may also result in less interaction with non-family friends, which is discussed as a promotive factor below.

Maternal depression has been strongly linked to poorer child behavioural outcomes (Hobcraft and Kiernan, 2010; Kiernan and Huerta, 2008; Kiernan and Mensah, 2009; Washbrook, 2010), with a number of routes by which this may operate. Mothers suffering from depression may struggle to control their children or to provide clear rules or boundaries. Children may also experience stress or distress from living with a mother suffering depression. Moreover, mothers suffering depression may actually report child behaviour as worse than non-depressed mothers, since they may be more sensitive to it.

There is surprisingly little research relating mothers' basic skills to children's outcomes. Similarly, there is a lack of evidence that maternal illness or disability impacts negatively on children's outcomes. However, it is reasonable to expect that long-term ill or disabled mothers might face greater challenges in supporting their children's development.

By contrast there is substantial evidence that various aspects of financial stress are associated with worse outcomes. Considerable analytical effort has been spent in trying to ascertain what it is about family poverty or financial stress that is associated with, or predictive of, worse outcomes for children. However, the mechanisms are not fully understood. It has been consistently shown that only a part of the association between family poverty and children's outcomes can be accounted for by what less advantaged compared to more advantaged parents do with their children. Measures of family environment are unable completely to capture all the differences in resources or context (e.g. books, outings, lack of dedicated space) that may be relevant, though studies have shown that these can be important. It is possible, though less easy to demonstrate, that the stress and anxiety associated with managing on a low income may translate into children having worse outcomes.

The full set of family risk characteristics and their associations with the five outcome measures are illustrated in Table 3.5.

Table 3.5: Family risk characteristics and their associations with child's cognitive skills, behaviour and educational attainment

Risk Factor	Non-verbal skills		Verbal cognitive skills		Maths skills		Behaviour		KS1 attainment	
	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?
Lone parent on one or more previous occasions	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	**Yes**	**Yes**	No
The more siblings the child has	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	**Yes**	**Yes**
Change in number of siblings between surveys	No	N/A	No	N/A	No	N/A	No	N/A	**Yes**	No
Mother has trouble with basic reading skills	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Mother has difficulty with basic maths skills	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Mother suffers from depression	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**
Mother has longstanding illness or disability	No	N/A	No	N/A	No	N/A	**Yes**	No	**Yes**	No
Family was poor on one or more previous occasions	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Family is on means-tested benefits	**Yes**	No	**Yes**	**Yes**	**Yes**	No	**Yes**	No	**Yes**	No
Family has difficulty affording items	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Family is behind with bills	**Yes**	No	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**	**Yes**	No

Note: "Simple relationship" is the association net only of the small group of controls. "Relationship with other factors" is the association of the risk factor with the age 7 outcome net of all other risk and promotive factors as well as the controls. If a factor did not have a significant simple association, it was not tested for whether it was significant net of all other factors – indicated by N/A.

Most of these family characteristics have a simple relationship with the child's cognitive skills, behaviour and educational outcomes at age 7, but far fewer maintain that association when all other factors are taken into account. This suggests that many of these family characteristics accompany other aspects of family context or parental behaviour, and the simple relationships are therefore picking up on those links between factors.

For example, mother's lack of basic skills is likely to be strongly associated with educational qualifications (discussed below). Once qualifications are included in the analysis, therefore, we no longer see any additional association with mother's lack of basic skills. Similarly, difficulty affording items is strongly linked to family poverty and thus has no independent association with children's outcomes once we include family poverty in the analysis.

Once all other factors were included, lone parenthood was only associated with greater behavioural difficulties. Family structure *per se* would then appear to have no direct association with children's cognitive or educational outcomes. Conversely, the more siblings a child had the worse their cognitive and educational outcomes, though not their behaviour, were predicted to be, other things being equal.

Maternal depression was significantly associated, not only with behaviour, consistent with existing literature, but also with KS1 attainment, once other factors were taken into account. It may be that mothers who suffer from depression have greater difficulty engaging with their child's school work and learning, but this remains speculative. By contrast, maternal disability was not associated with worse outcomes on any of the measures.

Turning to the financial context, family poverty was negatively associated with all three cognitive outcomes as well as with behaviour and KS1 attainment, even after a wide range of parental behaviours and characteristics associated with poor or with non-poor families were taken into account. Financial stress as measured by being behind with bills was negatively associated with both the child's verbal skills and their behaviour, even after controlling for poverty and other measures of financial difficulties. Being on means-tested benefits also predicted worse verbal skills, after controlling for other factors, including poverty.

3.3.2 High-performing children from families experiencing poverty

Table 3.5 illustrated that in the analysis, poverty constituted a 'risk factor' across all five outcomes. Before continuing to explore all the other factors, we examine this particular finding in more detail.

By controlling in the statistical analysis for a range of parental interactions and behaviours we have attempted to exclude some aspects of family context that have been shown to differ between families in poverty and those not. As with earlier studies we have shown that family poverty remains a significant risk factor even after such factors are taken into account.

However, both poor and non-poor children are heterogeneous in their outcomes. Not all children growing up in poverty will have worse outcomes, just as not all children in well-off families will have better outcomes. Indeed, one of the striking features of our analysis is the amount of variation among children, even when we hold a wide range of family background

characteristics constant. One way of looking at whether particular factors matter more for the outcomes of children living in poverty is to explore the family context associated with children from poor families who 'buck the trend', that is, who do better than we would predict.

Specifically, we investigate the question:

> *What are the family interactions and parental behaviours experienced by those children experiencing poverty who have better KS1 attainment than predicted?*

We look at those children whose actual KS1 scores are substantially higher than we would predict, taking into account their experience of poverty and a limited set of other key characteristics. We compare the circumstances of these children, in terms of their family context and parental behaviours and interactions with those of

a) children experiencing poverty who do similarly to or worse than the statistical models predict and
b) children with no experience of poverty.

This enables us to identify whether children living with family poverty who 'buck the trend' appear to differ in their family context from other poor children; and whether they are more similar in certain respects to children with no experience of poverty.

The approach is described in more detail in Box 3.6.

Box 3.6: Identifying children living in family poverty who perform better than predicted

To identify children who performed better than would be expected given their own and their family characteristics, we estimated a model that predicted scores on the five children's outcomes (verbal, non-verbal and maths skills; behaviour; and educational outcome).

The model included our basic control variables, whether the family had experienced poverty and a simple set of additional variables found to be associated with the outcomes, and which could not be directly considered as parental behaviours or activities: experience of having a lone parent, whether anyone in the family works, parental qualifications, and number of rooms in the home.

We then computed the difference between each child's predicted score according to our statistical model and their actual score: this difference is known as the residual.

Children with a positive residual scored better than predicted and those with a negative residual scored lower than predicted. For these analyses, we selected those in the top 25 per cent of residuals as being those who scored 'better than predicted'.

In reporting the findings, we focus on KS1 attainment, but we tested the results on all five outcome measures and found a consistent pattern.

The analysis described here provides an alternative approach to the analysis of protective factors in the final subsection of this chapter (Section 3.6, below). Our analysis of protective factors brings a statistical approach to the question we explore descriptively here. But the

results across the two forms of analysis ask a similar question and provide a consistent response.

Overall, we find that those children who experience poverty but who do better than expected are more similar to other children in poverty than they are to children with no experience of poverty.

We present the results of comparisons between children with experience of poverty who perform better than predicted and those children who were never poor in two tables. Table 3.7 shows those family characteristics and parental interactions that differ significantly between the two groups of children.[6] Table 3.8 shows the family characteristics and interactions that do not differ significantly.

As Table 3.7 shows, it is only in terms of one characteristic that children with experience of poverty who perform better than predicted differ from other poor children. That is, poor children who 'buck the trend' have, on average, fewer siblings than poor children who do not perform above expectations.

Table 3.7: Family interaction and behaviours by experience of poverty and whether child does better than expected at KS1: Factors which differ between high achieving poor children and non-poor children

Family characteristic or parental behaviour	Poor children who do better than predicted (N=371), compared to other poor children (N=1151)	Poor children who do better than predicted (N=371), compared to non-poor children (N=2592)
Number of siblings	Fewer siblings	More siblings
Maternal mental health	No difference	Worse mental health
Mother smokes	No difference	More mothers who smoke
Mother's frequency of drinking alcohol	No difference	Less frequent alcohol consumption by mother
Mother's dissatisfaction with time spent with child	No difference	Less dissatisfaction
Family has many rules	No difference	Fewer rules
Rules are strictly enforced	No difference	Lower enforcement
Parents' contact with the child's school	No difference	Less contact
Non-English language spoken at home	No difference	More other language use
Grandparents care for	No difference	More grandparental care

[6] Note that we initially compared both with those children without experience of poverty who also do better than expected, as well as with all children without experience of poverty, but the results did not differ.

Family characteristic or parental behaviour	Poor children who do better than predicted (N=371), compared to other poor children (N=1151)	Poor children who do better than predicted (N=371), compared to non-poor children (N=2592)
child on weekends		
Partner smokes	No difference	More smokers among partners
Partner's frequency of drinking alcohol	No difference	Less frequent alcohol consumption by partner
Partner uses hard drugs	No difference	More drug use by partner
Partner's dissatisfaction with time spent with child	No difference	Less dissatisfaction of partner with time spent with child

Table 3.7 illustrates that for a large number of characteristics, 'overachieving' poor children who have experience of poverty live with more parental risk factors than non-poor children. Therefore, there is little in their family circumstances which supports their higher performance and which marks them out from other poor children.

While this is supported by our subsequent statistical analysis of 'protective factors', it is perhaps *prima facie* surprising that so few factors distinguish high-performing poor children from other poor children. The analysis does not provide any evidence that specific parental behaviours account for the worse average outcomes of poor children.

In Table 3.8 we list those family characteristics and parental behaviours that do not differ between children who perform better than predicted at KS1 and those who have never been poor. There is also no difference between poor children who perform well and poor children who perform no better than predicted on these measures.

Table 3.8: Family interaction and behaviours by experience of poverty and whether child does better than expected at KS1: Factors which do not differ between high-achieving poor children and non-poor children

Variable	Poor children who do better than predicted (N=371), compared to other poor children (N=1151)	Poor children who do better than predicted (N=371), compared to non-poor children (N=2592)	Poor children who do not perform better than predicted, compared to non-poor children
Mother self-appraisal as parent	No difference	No difference	No difference
Mother's frequency of reading to child	No difference	No difference	Mother reads less frequently
Mother's report of closeness to child	No difference	No difference	Mother expresses lower average closeness

Variable	Poor children who do better than predicted (N=371), compared to other poor children (N=1151)	Poor children who do better than predicted (N=371), compared to non-poor children (N=2592)	Poor children who do not perform better than predicted, compared to non-poor children
Frequency of disciplining of child	No difference	No difference	No difference
Partner self-appraisal as parent	No difference	No difference	No difference
Partner's frequency of reading to child	No difference	No difference	Partner reads less frequently
Partner's report of closeness to child	No difference	No difference	Partner expresses lower average closeness
How often partner looks after child on own	No difference	No difference	No difference
How often child sees friends outside of school	No difference	No difference	No difference

Table 3.8 shows that in certain respects these children with experience of poverty who 'buck the trend' do not differ – on average – from children without experience of poverty. However, on these measures they do not differ from other poor children either. This means these factors cannot be protective, since they do not differentiate these high-achieving poor children from other poor children.

This may, however, be partly a question of statistical power (sample sizes), since we have a relatively small group of 371 children who perform well above what we would expect.[7] Inspection of the actual values that underlie Table 3.8 indicates that, in most cases, the values on the family factors for these high-achieving children with experience of poverty fall somewhere between those values for other poor children and those values for children without experience of poverty.

An indication of this is given in column 3 of Table 3.8 which compares the children in families in poverty who do not perform better than predicted with non-poor children. It shows that in four cases there are indeed statistically significant differences between these two groups. These differences are not found between the high-achieving poor children and the children not in poverty. Children in poverty who do not perform better than predicted are less likely to be read to by their mothers and fathers, on average, and their mothers and fathers perceive their relationship to be less close than mothers and fathers of non-poor children. In these measures, poor children who over-achieve do not differ significantly from non-poor children.

[7] We measure performance as "well above" by comparing predicted scores with actual scores and taking those where the gap is among the 25% largest.

In summary, among the wide range of family and parental characteristics and behaviours, we find little evidence of specific factors that help to reverse the risks of family poverty. There are, certainly, many children who do better than their family poverty would predict – just as there are more advantaged children who do worse than we would predict. The diversity of children's outcomes is one of the striking features of the analysis. Nevertheless, we find that children from poor families who perform better than predicted have parental characteristics and behaviours and family circumstances that are much more similar to other children experiencing family poverty than they are to children who do not grow up in poverty.

3.3.3 Family promotive factors

We now turn from a consideration of risk factors to a consideration of those factors which are associated with better outcomes for children. Table 3.9 illustrates the relationship between a set of family characteristics anticipated to have positive associations with children's outcomes. These include the child living in a family with at least one parent in employment, with a more highly educated mother, in owner-occupied rather than rented accommodation and in a larger house. Other than employment status, all these have been indicated in the literature for their association with better outcomes for children.

Employment status is likely to be strongly associated with other factors that are covered in the analysis, such as lone parenthood, poverty and parental basic skills and qualifications. Indeed, we see that while it is associated with all five outcomes when other factors are not taken into account, it is associated with none of the five outcomes, once the other factors are included.

By contrast, living with a more highly educated mother is associated with all five cognitive, behavioural, and educational outcomes. More specifically, having a mother with qualifications at level 4 (diploma and equivalent) or above is predictive of better cognitive and educational scores and qualifications at level 5 (degree or postgraduate) are associated with fewer behavioural difficulties. As noted, a mother's educational qualifications may act as an indicator of or proxy for a range of parental attributes or aspects of family context. For example, it is not possible to disentangle whether they are indicators of skills and knowledge which inform parenting practice, proxies for differences in cognitive ability which may be transmitted directly to children, or through their engagement with the child, indicators of particular attitudes to learning and education and educational socialisation, or markers of the different sorts of occupation that qualifications enable access to, which then may bring differences in income, in self-esteem, and in autonomy. Given that educational qualifications are associated with better scores across all five outcomes, not just the child's educational attainment, it may be that they represent some combination of these.

Table 3.9: Family promotive characteristics and their association with child's cognitive skills, behaviour and educational attainment

Promotive factor	Non-verbal skills		Verbal skills		Maths skills		Behaviour		KS1 attainment	
	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?
At least one parent is in employment	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Mother has a higher level of qualifications	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Family rents privately, rather than from local authority	No	No	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Family is owner occupier of home, rather than renting from local authority	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	**Yes**
The more rooms the child's home has	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Note: "Simple relationship" is the association net only of the small group of controls. "Relationship with other factors" is the association of the promotive factor with the age 7 outcome net of all other risk and promotive factors (as described in Annex Table 1), as well as the controls.

Housing tenure is strongly correlated with other family-level factors, such as employment status, family structure and family poverty. Nevertheless, once all these are included, even though the associations with cognitive skills and behaviour disappear, owner-occupation is still associated with better KS1 scores. The increasing attention paid in the research to the relationship between the housing market and school quality as well as differences in school choice associated with access to housing might lead one to infer that the association may be capturing some differences in schooling, especially given the lack of association with cognitive skills.

House size was associated with better cognitive and educational outcomes even after controlling for other factors including parenting and numbers of siblings. This showed that children tended to do better the more rooms there were in the house, with each additional room adding to the effect. This may indicate that additional space is conducive to better learning. But it may also be taken as an income effect that differentiates affluent families from those who, while not poor, are not so well off.

3.3.4 Children with highly qualified mothers

In the preceding analysis, we found that there was one promotive factor that was consistently associated with all five outcomes, namely having a more highly qualified mother. The association was found once we had controlled for a range of parental behaviours that we might typically expect to be more common in such families, such as confidence in parenting and greater contact with the school, and therefore could not be 'explained' by them. Nevertheless, here we amplify that finding by describing the family context associated with children of higher-qualified parents compared with those living with less well-qualified parents.

In this descriptive analysis, we ask whether, as we might expect, families with more highly qualified mothers are also more likely to have clusters of other factors that are positive for children's outcomes. Such clustering of positive factors would then help us to understand the *kinds* of factors that qualifications tend to act as a proxy for, even if we have already controlled in the preceding analysis for these factors.

We therefore compared the average experience of children with highly qualified mothers (NVQ 4 or 5) to that of other children, looking across their experience of family interactions and behavours. Table 3.10 describes those family and parental characteristics and behaviours that differed significantly between the two groups, while Table 3.11 shows those that did not differ significantly between the two groups. (The independent effect of these family interactions and parental behaviours on children's outcomes is explored in Section 3.4, below.)

Table 3.10: Average differences in family interactions and parental behaviours between those children living in families with highly qualified mothers and other children

Highly qualified (NVQ 4-5) vs others
Child has fewer siblings
Less maternal depression
Mother less likely to smoke
Mother drinks alcohol more regularly[8]
Mother has higher self-rating as a parent
Mother reads to the child more often
Mother reports greater closeness to child
Mother has higher dissatisfaction with time spent with child
More family rules
Greater enforcement of rules
Higher levels of contact with the child's school
Languages other than English used less
Grandparents less likely to care at weekends
Partner less likely to smoke
Partner drinks alcohol more regularly
Partner is less likely to use drugs
Partner reads to the child more often
Partner has higher dissatisfaction with time spent with child
Child sees friends more often outside school

There are a number of significant differences between families with a highly qualified and those with a less highly qualified mother. Children of highly qualified mothers tend to have fewer siblings. They also have mothers who are less likely to smoke, have lower levels of depression, drink alcohol more regularly, feel more positive about their abilities as parents, read to their children more often, feel closer to them, and feel less satisfied with the amount of time they have together. They also live in families with more rules and rules that are more strictly enforced, with parents who are more likely to have had contact with their schools, and who are less likely to use a language other than English at home.

They have fathers who are less likely to smoke or use hard drugs, who drink more regularly, read to their children more often, and are also more dissatisfied with the amount of time they have to spend with their children. Children with highly qualified mothers also spend more

[8] This factor is discussed further in Section 3.4.2, below.

time with friends outside of school. The fact that both highly qualified mothers and their partners express more dissatisfaction with the time spent with the child may reflect some of the realities of their employment situation. It may also reflect expectations relating to the extent and nature of interaction with their child.

Table 3.11 shows that only a few family interactions and parental behaviours do **not** differ significantly across children according to whether they have a more highly qualified mother or not.

Table 3.11: Family interactions and parental behaviours which do not differ between those children living in families with highly qualified mothers and other children

Family interaction or parental behaviour
Mother's use of hard drugs
Frequency of disciplining of child
Partner's self-appraisal as parent
Partner's report of closeness to child
How often partner looks after child on own

Overall, children living with higher-qualified mothers tend to have more positive characteristics for better children's outcomes than children with less highly qualified mothers. As noted, this is a simple description which does not 'explain away' the finding from the previous section that having a more highly qualified mother was associated with better outcomes on all five measures, *even after taking all these parental characteristics and behaviours into accoun*t. Nevertheless, it does help us to understand the ways in which circumstances or behaviours conducive to better children's outcomes can cluster at the family level according to other parental characteristics.

3.4 Family and parents' interactions and behaviour

This section considers a range of aspects of parenting of both mothers and fathers, as well as some behaviours of mothers and fathers that are known to be associated with children's cognitive, educational or behavioural development.

3.4.1 Risk family and parental interactions and behaviours

First we consider risk behaviours or family interactions that have negative effects on children's outcomes. These include whether the mother smokes or uses drugs, which are clearly proxies for other aspects of parenting or family context; the frequency with which the child is disciplined, which is typically found among children with worse behaviour; dominant or exclusive use of a language other than English in the home;[9] child care by grandparents,

[9] While bilingualism has been associated with positive outcomes, the use of another language has been associated with a slower rate of development, though the effects do not tend to persist.

which has been linked to some negative outcomes, though the effects are not fully consistent.

In addition, a range of behaviours and characteristics relating to the father were considered in this analysis, to better explore the contribution of fathers to their children's outcomes. The fact that both parents living with the child are interviewed in the MCS is a recognition of the developing interest and understanding of fathers' role in supporting child wellbeing. The potential paternal risk factors explored are father's smoking and drug use, their difficulty with basic skills, and whether they have a longstanding illness or disability. Positive paternal characteristics are examined below. In addition, the analysis explored whether non-resident fathers caring for the child had any association with their children's outcomes.

To explore the contribution of fathers' characteristics, we had to exclude lone parent families (as information on fathers is not available for those families) and analyse the subset of couple-parent families, whether those with both natural parents or with a step-parent. We also looked at the associations of the other factors with children's outcomes for this subset of couple-parent families. The patterns of association for those other factors in couple families were similar to those for all families, so we do not report those associations separately.

As illustrated in Table 3.12, simple relationships were explored, followed by associations of the different factors once all other family, parental and contextual factors are taken into account. Most of the risk factors are associated with worse outcomes on most outcome measures, when taken one by one. However, there are far fewer significant associations once we take all other factors and characteristics into account, demonstrating that these risk factors are frequently associated with other negative characteristics or behaviours. For example, maternal smoking is associated with (lower) educational qualifications and with lone parenthood, and thus we see no association of mother's smoking with cognitive or educational outcomes once all factors are included.

Nevertheless, mothers' smoking does show an association with greater behavioural difficulties, indicating that it may be proxying here for factors such as stress, or even be a response to behavioural difficulties. By contrast, fathers' smoking is associated with poorer verbal skills, when all other factors are netted out.

Where fathers have difficulty with literacy, this is associated with worse verbal and maths skills and lower KS1 attainment. Lack of basic reading skills (such that they have difficulty with a children's book) may indicate a range of aspects of environment, such as lack of role modelling of reading, fewer books or reading materials around, or difficulty in supporting learning that impacts on both verbal skills and KS1 attainment. It is less obvious such factors should be associated with maths skills, however. It is worth noting that actual frequency of reading to the child has also been controlled, so the association with poor basic skills is over and above this parental behaviour.

Greater frequency of child discipline tends to occur where children exhibit more difficult behaviour. Thus, it is not surprising to find it negatively associated with children's behaviour. Perhaps more interestingly it is also associated with worse maths skills and KS1 attainment. However, behavioural difficulties can themselves disrupt learning. Moreover, strictness of rule enforcement in the home has been included in the full model (see below), and therefore

the impact of greater frequency of disciplining is independent of consistency of rule enforcement.

Regular grandparental care has been identified as a potential risk factor, not so much because of the nature of the care itself, but because it may reflect those potentially stressful family situations in which parents are dependent on others to provide care at weekends (perhaps because of work patterns). It is found to be associated with worse non-verbal skills but not to have an association with any of the other outcomes.

Non-resident parent care has no association with children's outcomes (in either direction) once other factors, including family structure, with which it is closely linked, are taken into account.

3.4.2 Promotive family and parental interactions and behaviours

Turning now to more positive parental interactions and behaviours, Table 3.13 summarises promotive parenting and family interactions associated with the five outcomes.

These again include a number of measures of fathers' positive parenting, as well as mothers'. The measures comprise attitudes, such as evaluation of own parenting; behaviours such as reading to the child and contact with the child's school; emotional connectedness in the form of level of closeness to the child; satisfaction with time spent with the child; the extent to which the father cares for the child on his own; family enforcement of rules; and bilingualism. In addition, frequency of alcohol consumption is included as a promotive factor as we found that it is empirically positively associated with children's outcomes. While this may seem surprising at first, this measure captures only how many days per week a parent drinks, not the amount consumed or other potential signs of problem drinking. On this measure of frequency, a person who has a small glass of wine with dinner each day would have the highest possible score while a person who binge drinks once a week would have quite a low score.

Parents reading to the child and reports of closeness to child have been found to be associated with more positive outcomes for children, as have the strict enforcement of rules and parental contact with the school. But there is less clear evidence for the other factors.

While the majority of the different aspects of parenting are associated with the child's outcomes when taken one by one, remarkably few of them are associated with child cognitive ability, KS1 attainment or behaviour when all other factors are taken into account.

Nevertheless, there are some associations which remain once all other positive and negative family and contextual factors are considered. Mothers (but not fathers) who evaluate their own parenting highly tend to have children with fewer behavioural difficulties and better verbal skills. It is possible therefore that the self-evaluation does translate into effective parenting, though there remains the possibility of reverse causation (i.e. that parents whose children have good verbal skills and few difficulties tend to think they are good parents).

Table 3.12: Parental risk factors and their impact on child's cognitive skills & behaviour

Risk factor	Non-verbal cognitive skills		Verbal cognitive skills		Maths skills		Behaviour		Education	
	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?
Mother smokes	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	**Yes**	**Yes**	No
Father smokes	**Yes**	No	**Yes**	**Yes**	**Yes**	No	**Yes**	No	**Yes**	No
Mother uses hard drugs	No	N/A	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Father uses hard drugs	No	N/A	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Father has trouble with basic reading skills	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**
Father has trouble with basic maths skills	**Yes**	No	**Yes**	No	**Yes**	No	No	N/A	No	N/A
Father has longstanding illness or disability	No	N/A	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Child is disciplined more often	No	N/A	No	N/A	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Mostly a language other than English at home	No	N/A	No	N/A	**Yes**	No	**Yes**	No	No	N/A
Child is cared for by grandparents at weekends	**Yes**	**Yes**	**Yes**	No	No	N/A	**Yes**	No	**Yes**	No
Child is cared for by non-resident parent at weekends	No	N/A	**Yes**	No	No	N/A	**Yes**	No	**Yes**	No

Note: "Simple relationship" is the association net only of the small group of controls. "Relationship with other factors" is the association of the risk factor with the age 7 outcome net of all other risk and protective factors as well as the controls. If a factor did not have a significant simple association, it was not tested for whether it was significant net of all other factors – indicated by N/A.

Table 3.13: Parental promotive factors and their impact on child's cognitive skills & behaviour

Promotive factor	Non-verbal cognitive skills		Verbal cognitive skills		Maths skills		Behaviour		Education	
	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?
Mother considers she is a good parent	No	N/A	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**	**Yes**	No
Father considers he is a good parent	No	N/A	**Yes**	No	No	N/A	**Yes**	No	No	N/A
Mother drinks alcohol more regularly	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	**Yes**	**Yes**	No
Father drinks alcohol more regularly	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Mother reads to child more often	No	N/A	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**
Father reads to child more often	No	N/A	**Yes**	**Yes**	No	N/A	**Yes**	No	**Yes**	No
Mother says she is close to child	No	N/A	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**	**Yes**	No
Father says he is close to child	No	N/A	**Yes**	No	No	N/A	**Yes**	No	No	N/A
Mother is happy about amount of time spent with child	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Father is happy about the amount of time spent with child	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Father looks after child on own more often	No	N/A	**Yes**	No	No	N/A	No	N/A	**Yes**	No
Parent(s) have contact with the child's school	**Yes**	No	**Yes**	**Yes**	**Yes**	No	**Yes**	No	**Yes**	No
Both English and other language spoken at home	No	N/A	**Yes**	**Yes**	No	No	No	No	No	N/A
Family has many rules	No	N/A	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Rules are strictly enforced	**Yes**	No	**Yes**	**Yes**	**Yes**	No	**Yes**	No	**Yes**	**Yes**

Note: "Simple relationship" is the association net only of the small group of controls. "Relationship with other factors" is the association of the promotive factor with the age 7 outcome net of all other risk and protective factors as well as the controls. If a factor did not have a significant simple association, it was not tested for whether it was significant net of all other factors – indicated by N/A.

Regular reading to their child by mothers and fathers is also associated with more positive outcomes. For mothers it is associated with better educational attainment, verbal skills and maths skills. For fathers it is only associated with better verbal skills, net of other factors. Nevertheless, given that reading would be expected to have its biggest impact in relation to verbal skills, this does imply a potential direct impact of the behaviour, (rather than that fathers who have good parenting skills in other ways also happen to read to their children). It is also interesting that it has an effect over and above mothers' frequency of reading to the child. Mother's report of a high degree of closeness to the child is predictive of better verbal skills and fewer behavioural difficulties.

Both mothers and fathers who drink alcohol more regularly tend to have children with better outcomes, but this would appear to be largely an income effect. It disappears for fathers once other factors are taken into account, but remains for mothers for its association with children's behaviour. As discussed above, this is a measure of regularity of drinking rather than alcoholism, so it may be picking up particular patterns that are associated with both better off and more predictable lifestyles.

Where a parent or parents have contact with the school there is a positive association with the child's verbal skills, though not with other cognitive skills nor, interestingly, with KS1 attainment. It might be expected that where parents have greater engagement with the school, that is helpful in supporting children's learning, but parental contact might also occur where there are difficulties at school, and thus have a countervailing association. Bilingualism in the home is also associated with better verbal skills, other things being equal.

Finally, consistent with other research, the enforcement (rather than the number) of rules is positive for children's learning; though, again, it only comes through in terms of a relationship with children's verbal skills and their KS1 attainment.

It would seem from this analysis that it is verbal skills that are most susceptible to parenting practices and behaviour.

Given the interest in fathers' roles in children's outcomes, Box 3.14 summarises both the risk and protective factors relating to fathers covered in this section, which are associated with one or more outcomes.

Box 3.14: Fathers and children's outcomes

Unlike much previous research, this analysis explored a range of fathers' behaviours and characteristics for their association with children's outcomes. Of all those considered, it found that:

- children whose fathers read to them more often had better verbal skills
- children whose fathers had difficulty with basic skills tended to have worse verbal and maths skills and lower KS1 scores
- children whose fathers smoked had worse verbal skills

Characteristics that were not associated with any of the five outcomes were a father's:

- report of closeness to the child;
- evaluation of his parenting
- disability or long-term illness
- satisfaction with the time spent with the child
- frequency of caring for the child
- hard drug use
- frequency of drinking alcohol

3.5 Peer factors, social support and neighbourhood context

3.5.1 Risk peer, social support and neighbourhood context factors

Table 3.15 shows the associations of the one social support risk factor with children's outcomes. Receiving financial support from family or friends was negatively associated with all of the outcomes, looking at the simple relationship. Once all of the other factors were taken into account, receiving financial assistance was associated with the three cognitive outcomes only. While having family and friends who are willing to help financially could be seen as positive, actually receiving this help may be an indication of the family being in especially difficult and stressful financial situations.

Table 3.15: Risk peer, social support, and area factors and their impact on child's cognitive skills & behaviour

Risk Factor	Non-verbal skills		Verbal skills		Maths skills		Behaviour		KS1 attainment	
	Simple relationship?	With other factors?	Simple relationship?	With other factors?	Simple relationship?	With other factors?	Simple relationship?	With other factors?	Simple relationship?	With other factors?
SOCIAL SUPPORT										
Grandparents, other relatives, or friends *do* help financially	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	No

Note: "Simple relationship" is the association net only of the small group of controls. "Relationship with other factors" is the association of the risk factor with the age 7 outcome net of all other risk and protective factors as well as the controls. If a factor did not have a significant simple association, it was not tested for whether it was significant net of all other factors – indicated by N/A. A full list of all the factors included in the analysis and their description can be found in Annex Table 1.

3.5.2 Promotive peer, social support and neighbourhood context factors

Table 3.16 shows the findings for promotive social support, peer, and area factors. When we consider the role of these factors after controlling for all the other characteristics and circumstances of the child and their family, we find few that are associated with children's outcomes. The relationship between the child seeing other children and their behaviour remains. Though this may tell us more about the limits on socializing for children with more behavioural problems than about the positive impact of socializing itself, it is possible that it is saying something about the potential positive consequences of peer networks.

Table 3.16: Promotive peer, social support, and area factors and their impact on child's cognitive skills & behaviour

	Non-verbal cognitive skills		Verbal cognitive skills		Maths skills		Behaviour		Education	
Promotive Factor	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?	Simple relation-ship?	With other factors?
PEER FACTORS										
Child sees friends more often outside school	No	N/A	No	N/A	No	N/A	**Yes**	**Yes**	No	N/A
SOCIAL SUPPORT										
Mother friends with other parents in the area	**Yes**	No	**Yes**	No	No	No	**Yes**	No	**Yes**	No
Friends/family live in the area	No	N/A	No	N/A	No	N/A	Yes		No	
Mother spends more time with friends in past week	No	N/A	No	N/A	No	N/A	No	N/A	No	N/A
Grandparents *would* help financially if needed	**Yes**	No	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**
NEIGHBOURHOOD/AREA										
Family lives in less deprived neighbourhood (Index of Material Deprivation for ward)	**Yes**	No	**Yes**	No	**Yes**	**Yes**	**Yes**	No	**Yes**	No
Area is good for raising children	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No	**Yes**	No
Mother feels safe in the area	**Yes**	No	**Yes**	**Yes**	**Yes**	No	**Yes**	No	**Yes**	No

Note: "Simple relationship" is the association net only of the small group of controls. "Relationship with other factors" is the association of the risk factor with the age 7 outcome net of all other risk and protective factors as well as the controls. If a factor did not have a significant simple association, it was not tested for whether it was significant net of all other factors – indicated by N/A. A full list of all the factors included in the analysis and their description can be found in Annex Table 1

Potential—rather than actual—financial support remains a positive factor for verbal skills, behaviour, and educational outcomes. Perhaps unsurprisingly, the quality of the area measures that are associated in the simple analysis with children's outcomes practically disappear once we take account of other factors associated with where people live, such as their work status, whether they are poor or not and their housing tenure. Those who are better off in other ways are likely to be living in (and have more choice over whether they live in) good areas. However, we can see that living in less deprived areas is positive for one outcome (maths skills) and that mother's sense of safety in the area is positively associated with the child's verbal skills.

3.6 Protective factors

The analysis also aimed to identify whether there were any protective factors. That is, whether there were any positive family characteristics which were *more* positive for disadvantaged families. If present (or for negative factors, if absent), they would reduce the gap between disadvantaged and advantaged families. By looking at whether the associations between risk or promotive factors and children's outcomes varied between children in families that had been poor at some point and those in families that were not poor at any point, it was possible to ascertain if those factors were protective.

The analysis showed that there were no factors that were protective across all five outcomes. Table 3.17 summarises the small number of factors that were protective for one of the outcomes.

Table 3.17: Protective factors for children in poverty and age 7 outcomes

	Non-verbal skills	Verbal skills	Maths skills	KS1 attainment	Behaviour
Family characteristics					
Mother has a higher level of qualifications			✓	✓	
Family is not on benefits		✓			
Family is owner-occupier of home				✓	
Peer factors					
Child sees friends more often outside school					✓
Neighbourhood or area					
Mother feels safe in the area		✓			

Higher **parental qualifications** were more important (and therefore protective) for poor families for educational outcomes. That is, children of highly qualified parents in poor families had outcomes that were more similar to those of highly qualified parents in non-poor

families, whereas there was a bigger gap between children in poor and non-poor families for those with parents with low qualifications.

The **child seeing friends outside school more frequently** and **the mother feeling like a competent parent** were more positive influences for behaviour for children in family poverty compared to those not in poor families. These were therefore protective factors for this outcome.

There was also a protective effect of **living in an owner-occupied house** for educational outcomes. Children from poor and non-poor families performed similarly at KS1 if they lived in owner-occupied accommodation, while amongst those who lived in rented or shared accommodation, children with experience of family poverty had lower scores.

By contrast, **receipt of means-tested benefits** was an exacerbating factor for verbal skills among children in poor families, in that it resulted in lower scores on this outcome.

Number of siblings, frequency of watching television, frequency of discipline and having more rooms in the house differentiated more among the non-poor than among the poor for certain outcomes. These factors are therefore not protective as they do not reduce the gap between children in and those not in poverty.

Overall, then there is little clear evidence of family or parent factors that can be targeted to help bridge the concerning developmental gaps between poor children and those not in poverty.

3.7 Summary

The findings from the analysis are summarised in Figure 3.1.

The findings from the age 7 analysis were largely consistent with analyses of earlier outcomes. A range of factors were implicated in one of the five outcomes, but few were implicated in all. The risk and promotive factors themselves showed consistency over time. That is, those that were predictive at earlier ages were by and large predictive at age 7. This consistency in predictors at different ages has also been found in separate analysis of health outcomes (Connelly 2011). Moreover, the results illustrated the insights from earlier studies that both poverty and parenting matters (Kiernan and Mensah, 2009). Parenting moderates the impact of poverty, but both are significantly associated with children's outcomes.

In fact, out of the more than 40 or more potential risk and promotive factors explored, the analysis showed that only three were consistently associated with either better or worse outcomes across all five age 7 measures, once other factors were taken into account.

First, was when the child had a longstanding illness or disability, which had a negative impact on children's outcomes. While this might not be a surprising finding, given the range of difficulties that disability may represent, it is nevertheless worth recognising that there may be potential for intervention to ensure that other barriers to learning do not further impede disabled children's learning and development.

Figure 3.1: Family stressors and children's outcomes at age 7

Non verbal skills	Verbal skills	Maths skills	KS1 attainment
Risk factors – Child has illness or disability – Family was in poverty – The more siblings the child has – Family is behind on bills – Child is cared for regularly by grandparents – Grandparents or others *do* help family financially	**Risk factors** – Child has illness or disability – Family was in poverty – The more TV the child watches – The more siblings the child has – Family is on benefits – Family is behind on bills – Grandparents or others *do* help family financially – Father has difficulty with basic reading – Father smokes	**Risk factors** – Child has illness or disability – Family experienced poverty – The more siblings the child has – Mother disciplines child more – Grandparents or others *do* help family financially – Father has difficulty with basic reading	**Risk factors** – Child has illness or disability – Family experienced poverty – The more siblings the child has – Mother suffers from depression – Father has difficulty with basic reading – Child is disciplined more often
Promotive factors - Mother has a higher level of qualifications – The more rooms in the home	**Promotive factors** – Mother has a higher level of qualifications – The more rooms in the home – Mother thinks she is a good parent – Grandparents *would* help financially – The safer mother feels in the area	**Promotive factors** – Mother has a higher level of qualifications – Family lives in less deprived area – The more rooms in the home	**Promotive factors** – Mother has a higher level of qualifications – The more rooms in the home – The more mother reads with child – Rules are strictly enforced – Grandparents *would* help financially
Protective factors None	**Protective factors** – The safer mother feels in the area – Family is not on benefits	**Protective factors** – Mother has a higher level of qualifications	**Protective factors** – Mother has a higher level of qualifications – Family is owner occupier of home

KEY

Risk factor: *linked to worse cognitive ability or behaviour*

Promotive factor: *linked to better cognitive ability or behaviour*

Protective factor: *reduces the gap between those in poverty and those not in poverty*

Common Risk factors
Child has a longstanding illness or disability
Family was in poverty on one or more occasions
Common Promotive factors
The better the qualifications that mother has
Common Protective factors
None

The second common factor was family poverty, which was negatively associated with children's outcomes, even when all other family characteristics and parental behaviour were included. The wide range of indicators included in the analysis might be expected to cover some of the mechanisms by which family poverty translates into worse outcomes; yet the impact persisted over and above these. This finding for age 7 outcomes is supported by existing research, though this particular combination of outcomes at age 7 has not previously been explored, and it reinforces policy concern with child poverty.

Third, child cognitive skills, KS1 attainment and behaviour were all positively associated with higher levels of maternal qualifications, even taking account of the many factors that are also associated with families with more highly qualified mothers, such as fewer siblings, greater resources, greater confidence in parenting, more contact with the child's school. Interestingly, maternal qualifications were protective for KS1 attainment. That is, poor children of more highly qualified mothers had KS1 outcomes that were much closer to those of non-poor children and which distinguished them from poor children with less well qualified mothers.

With both poverty and parental levels of education, it is not straightforward to identify the channels by which these impact on children's cognitive skills and behaviour.

As well as through reduced resources, poverty might also impact outcomes in part through the anxiety and family stress it causes. There may also be behaviours or circumstances, which are associated with worse outcomes for children, which have not been measured in this analysis, and which are more prevalent in poor families. However, the persistent association between poverty and children's outcomes across different research findings and outcomes, and the difficulty in accounting for it through measured behaviours, makes it seem unlikely that the differences in outcomes of poor children could ever be fully 'explained' by differences in parenting.

It is likely that qualifications act in part through the mother's consequent ability to transmit skills and support learning, though they may also reflect educational socialization and attitudes. We do, however, include a large range of family, child and parent characteristics, which reduces the chances that significant indicators of relevant parenting behaviours have not been included in our analyses.

Even if there were only three factors consistently associated with all five outcomes, there were far more factors that were associated with one or more of the cognitive, educational and behavioural outcomes. It is in some ways just as interesting to find particular family factors are applicable to specific outcomes. Factors that were significant for at least one outcome included family circumstances, such as being in a lone parent family and having larger numbers of siblings; but also parental behaviours, such as father's and mother's smoking; and stressors, such as being behind on the bills, and the child's mother suffering from depression. All of these had negative impacts on the outcome in question.

Positive associations with one or more of the outcomes also covered family circumstances, such as number of rooms in the house; parental behaviours, such as reading to the child; and neighbourhood factors, such as mother's feeling of safety in the area.

Interestingly, it appeared that verbal skills were most sensitive to parental behaviours and interactions. KS1 attainment was affected by a more limited set of family and contextual

factors. However, risk factors for KS1 scores did include fathers with lack of basic reading skills and mothers who suffered from depression. Promotive factors included more rooms in the house, having a mother who read more often to the child and having grandparents who would help out financially if needed. The full set of risk and promotive factors associated with KS1 scores are listed in Box 3.17.

Box 3.17: Factors associated with children's KS1 scores

The analysis showed that there were positive associations with KS1 from:

- Strict enforcement of rules
- Mother reading to child more often
- Family living in owner-occupied housing.
- A greater number of rooms in the home
- If grandparents *would* help out financially if needed
- Mother having a higher level of qualifications

The negative associations were:

- Father had limited basic reading skills
- Mother suffered from depression
- There were more children in the home
- Child was disciplined more frequently
- Family was in poverty on one or more occasions

This suggests that there are quite specific circumstances that put children at risk of performing less well at school, among which access to resources as well as parental skills / qualifications feature. Interestingly, it is only for KS1 attainment that living in owner-occupied housing makes a difference to outcomes, which may indicate some connection between housing access and school quality, as has been indicated in research.

There is the potential for practitioners to be aware of the implications of particular challenges for children in specific circumstances and how these relate to different outcomes. For example, where children are living with a number of siblings, they may benefit from additional support to realize their potential; and where they are living with a depressed or lone parent, they may benefit from specific support in terms of their behavioural outcomes.

Support for financial literacy may also have direct pay-offs in reducing stress within the home and helping to bring about more favourable outcomes for children. Receipt of benefits and being behind on bills, as well as receiving financial help from grandparents, were associated with worse outcomes, even taking poverty into account. This suggests that, beyond income itself, the source and management of that income may be related to children's outcomes.

The analysis also showed that even those factors which have a significant relationship with children's outcomes only 'explain' a small part (up to a quarter) of the differences in children's scores. There is much variation in children that simply cannot be directly attributed to their circumstances, even when as comprehensively measured as here.

We return to some of these points in the conclusions. First, Chapter 4 explores child wellbeing at age 13 and how this is related to stressful life events that occur at different points in childhood.

4. The impact of stressful life events at different age periods on later educational attainment and wellbeing

4.1 Stressful life events and children's outcomes at age 13-16

4.1.1 Aim and overview

The Avon Longitudinal Study of Parents and Children (ALSPAC) is an ongoing longitudinal study of children born to mothers resident in the Avon area of England. It has surveyed a cohort of parents and children year on year into adolescence and young adulthood. The data are described further in Section 4.1.2, below

In this chapter, we examine how the ALSPAC children's experiences of earlier stressful events were associated with later teenage outcomes. Specifically, this analysis addresses the questions:

1. Whether family stressful events which occurred over three time intervals (i.e., birth to age 7, age 7 to age 10, and age 10 to age 13) had significant associations with later educational attainment and wellbeing outcomes.
2. Second, to investigate whether family stressful events were associated with changes in educational attainment from 11 to 14 and from 14 to 16 and whether family stressful events were associated with changes in wellbeing outcomes from ages 10 to 13.

For stressful events which occurred before age 10, this analysis explored whether such an event was associated with worsening outcomes as children matured into teenagers, showing negative changes well after the occurrence of the event. For stressful events which occurred after the age of 10, the analysis examined whether such an event was associated with negative changes in teenagers' outcomes, taking into account their previous educational attainment and wellbeing before the event occurred.

Information on stressful events was gathered from parents at three time points in the lives of their children: specifically at 7.5 years, 10.5 years and 13.8 years. We refer to these specific ages as ages 7, 10 and 13. Parents' reports of their children's experience of stressful events were coded into categories such as:

- Death in the family
- Illness in the family
- Exposure to crime or accident
- Financial difficulties
- Parental divorce
- Parents arguing/conflict
- Not seeing parents/siblings as much as usual
- Moving/changing schools
- Domestic abuse
- Victimisation or abuse outside of the family
- Homelessness/placed in care
- Family member arrested

The type and frequency of children's experience of stressful events are discussed in Section 4.1.3, below.

For the teenage outcomes, we examined both educational attainment and wellbeing measures, including:

- National test scores (KS3) at age 14
- National exam scores (KS4) at age 16
- Emotional wellbeing at age 13
- Behavioural wellbeing at age 13
- Social wellbeing at age 13
- School wellbeing at age 13

These outcome measures are described in Section 4.1.4, below.

The analysis demonstrates which stressful events were associated with lower educational attainment and worse wellbeing outcomes for teenagers who experienced these events compared to those who did not. We found that the significance of stressful events depends on the particular outcome being assessed and at what age the event occurred.

Stressful events which were associated with lower educational attainment and wellbeing outcomes for teenagers, no matter what age they occurred, include:

- Domestic abuse
- Victimisation or abuse outside of the family
- Homelessness/placed in care
- Family member arrested

Stressful events which were associated with lower wellbeing outcomes but not educational outcomes, no matter what age they occurred, include:

- Death in the family
- Serious illness of family member or child
- Exposure to accident or crime

Stressful events which were associated with worse educational attainment or wellbeing outcomes, but only when the event occurred when the child was older than 7 years, include:

- Parental divorce
- Parents arguing
- Not seeing parents/siblings as much as usual
- Moving/attending a new school

The rest of this chapter goes through the measures, relationships and results in more detail.

4.1.2 ALSPAC data

ALSPAC is a study of children born to over 14,000 mothers recruited in the Avon area during pregnancy in 1991 and 1992. The children's health and development has been tracked in great detail since that initial recruitment. They and their parents have provided a great deal of genetic and direct physical measures as well as questionnaire data and environmental measures.

The ALSPAC data are unique amongst large-sample UK longitudinal data-sets in surveying a cohort of children year on year. Primary sources of ALSPAC data collection include self-completion questionnaires administered during pregnancy and at regular intervals following the birth, and direct assessment of children in a clinic-based setting.

4.1.3 Stressful events

Data on stressful events come from parental questionnaires collected when the study child was 7 years, 10 years and 13 years. Parents were first asked, "During your study child's lifetime has anything exceptionally stressful happened to her/him that would really upset almost anyone, such as being involved in a terrible accident, or being abused or some other sort of disaster?" If parents answered yes, parents were then asked an open-ended question, "What is it?"

Parents' responses to the open-ended question regarding their child's experience of stressful events were coded using a revised scale based on Tiet's (2001) Adverse Life Events Scale. Since children often experienced more than one stressful event, each event was coded separately. Stressful events were coded only once according to the closest approximate age period during which they occurred, corresponding to the age gap between the different times of data collection: birth to 7 years, 7 to 10 years, and 10 to 13 years.

Table 4.1 displays the number of children whose parent reported each specific stressful event across the three age periods. The most frequent stressful event experienced by children and adolescents was the death of a family member or friend. This was most often the child's grandparents. However, there were also several instances of the bereavement of aunts, uncles and siblings.

The second most frequent stressful event was parental separation and divorce.

The third and fourth most common stressful events were injuries or illnesses of family members and the study child, respectively. This included serious illnesses such as cancer, and injuries such broken limbs and burns.

Experiences of victimisation and domestic abuse were the fifth and sixth most common stressful events, respectively. Experiences of victimisation, abuse, and bullying ranged from being "mugged at knifepoint" to "inappropriate touching from a neighbour". In a few instances rape was mentioned. Domestic abuse was often directed towards the mother by the partner; however, children were also reported to be victims of physical and mental abuse from fathers and sometimes mothers. It is worth noting that domestic abuse was more common in the early years of childhood (up to age 7). This is likely to be because there was a subsequent separation from the abuser: a quarter of marriages involving an abusive parent ended in divorce. More than half of the children who experienced domestic abuse were homeless, living in a refuge or placed in foster care at some point in time. However, as children approached adolescence, they were more likely to be victims of abuse and bullying outside of the home, than be victims of domestic abuse.

The seventh most common stressful event was not seeing either parents or siblings as much as usual. For 30 per cent of the children whose parents identified this as a stressful event, it

was often the result of parental separation and divorce when one parent moved to another location, sometimes taking a sibling or two with them. For another 35 per cent of the children, this event co-occurred when a parent or sibling was in hospital for a long period of time and the separation was seen as causing stress for the child.

Parental bereavement was the next most common event, with 95 children experiencing this tragedy. Some deaths of parents were sudden, unexpected events; others followed a long illness.

Parents fighting and arguing more than usual was the next most common stressful event, which co-occurred with parental separation or divorce in about 30 per cent of cases.

This was followed by the death of beloved pets. It is worth noting that most parents who listed pet bereavement as a stressful event did not list other stressful events at the same data collection point, which may put the death of a hamster in perspective.

Changing schools was also listed as a stressful event, which sometimes coincided with moving to a new home. Although moving home *per se* was not necessarily noted as stressful, it was often the changes which accompanied moving that were difficult, such as adjustment to a new school and friends.

There were also a few occurrences of atypical but highly stressful events including homelessness, living in a refuge or being placed in foster care, and a family member being arrested or put in prison. Parents also occasionally reported having a new sibling, problems in school and with friends, a friend being ill or injured and difficulties with finances as stressful events.

It is important to keep in mind that frequencies of each event are likely to be underestimated. Stressful events may have occurred which were not mentioned by the parents, either because the parents did not view the events as particularly stressful, the parent did not wish to mention the events, or the parent did not know that they occurred.

Table 4.1: Numbers of ALSPAC children experiencing stressful events by age period

	Timing of experience of stressful event		
Stressful Event	**Birth to 7 years**	**Age 7 to 10 years**	**Age 10 to 13 years**
1. Death of parent	27	31	37
2. Death of family member/friend	171	234	182
3. Child was seriously ill or injured	135	130	88
4. Family member was seriously ill or injured	114	154	138
5. Friend was ill or injured	2	3	3
6. Saw crime or accident	125	170	93
7. Negative change in parent's financial situation	3	3	1
8. Domestic violence/abuse including alcohol and drugs	51	44	29
9. Victim of abuse, violence or bullying (not within immediate family)	32	44	72
10. Parents separated /divorced/ left	140	191	140
11. Moved/attended new school	16	20	15
12. Got a new (step) brother or sister	7	3	2
13. Pet died	15	35	16
14. Parents/family argued more than previously	11	24	30
15. Family member arrested	6	5	15
16. Homeless/Living in refuge/Foster care	15	5	3
17. Not seeing parent/siblings as much as usual	40	35	28
18. Problems in school or with friends	3	3	6
No stressful events	7136	6248	5654

4.1.4 Outcome measures

Both educational and wellbeing outcome measures are covered in the analysis. National exam scores which come from the National Pupil Database were used as a measure of educational attainment. Total point scores were gathered at 14 years (KS 3). They were finely graded to maximise analytical purchase. For KS 4 (age 16), total GCSE/GNVQ new style scores were used.

Information on wellbeing was gathered from parents' questionnaires when their children were 7, 10 and 13 years old. This report used wellbeing measured at 13 years as outcomes. Four dimensions of wellbeing were examined: emotional, behavioural, social and subjective school wellbeing. All were measured on a three-point scale, where parents were asked to report their wellbeing relative to children of the same age: 0 = No more than others, 1 = A little more than others and 2 = A lot more than others. Dimensions of wellbeing were coded so that higher scores indicate more positive wellbeing.

Emotional wellbeing includes questions about the teenagers' separation anxiety, fears, compulsions and obsessions, anxiety and moods.

Behavioural wellbeing includes questions about teenagers' attention, awkward and troublesome behaviours, such as not listening, not following rules and telling lies.

Social wellbeing includes questions about their teenagers' friendships and social interactions and awareness, such as having at least one good friend, liked by other children and awareness of other people's feelings.

School wellbeing includes questions about their teenagers' satisfaction and engagement in school, such as whether they enjoyed school and found it stimulating.

4.1.5 Control variables

A small set of controls were in the second stage of analysis which included special educational needs status and eligibility for free school meals, gathered from Pupil Level Annual School Census (PLASC) data.

4.2 Analysis

The analysis took place in two stages.

1. Simple analyses examine the association between each stressful event for each of the three different time intervals (i.e., birth to age 7, age 7 to 10 and age 10 to 13) at which the event occurred with each of the six teenage outcomes.

2. More complex analyses examine the association between each stressful event and each outcome at the three different time intervals, controlling for the previous outcome measure and two control variables: special educational needs status and

eligibility for free school meals. For previous educational attainment, scores in national tests taken at age 11 (KS 2) were used to examine whether family stressful events were associated with changes in attainment between ages 11 (KS2) and 14 (KS3). Similarly finely graded scores from tests taken at age 14 (KS3) were used to examine whether family stressful events were associated with changes in attainment between the ages of 14 (KS3) and 16 (KS4). For wellbeing outcomes, the same wellbeing scores measured at 10 were used to determine whether family stressful events were associated with changes in wellbeing between the ages of 10 and 13.

It is important to note that the analysis measures associations rather than specific causality. That is, we can identify whether children who experienced a stressful event had poorer outcomes than those who did not but we cannot definitively attribute the difference to the stressful event itself.

4.3 Results

4.3.1 Relationship between stressful events and national test scores

Table 4.2 Stressful events and KS3 outcomes

Significant Stressful Events	Birth to 7 years		Age 7 to 10 years		Age 10 to 13 years	
	Without controls	With controls	Without controls	With controls	Without controls	With controls
Domestic violence/abuse	**Yes**	No	**Yes**	No	No	No
Victim of abuse, violence or bullying	No	No	**Yes**	**Yes**	**Yes**	No
Parents separated /divorced/ left	No	No	No	No	No	No
Moved/attended new school	No	No	**Yes**	**Yes**	No	No
Parents/family argued more than previously	No	No	No	No	**Yes**	No
Homeless/Living in refuge/Foster care	**Yes**	No	No	No	No	No

Note: Yes = statistically significant at the .10 level or below; No = not significant.

Stressful events which had statistically significant associations with later exam scores taken at age 14 are shown in the above table. Stressful events which were not significantly associated with KS3 outcomes are not listed.

Table 4.3: Stressful events and KS4 outcomes

Significant Stressful Events	Birth to 7 years		Age 7 to 10 years		Age 10 to 13 years	
	Without controls	With controls	Without controls	With controls	Without controls	With controls
Domestic violence/abuse	**Yes**	No	**Yes**	**Yes**	No	No
Victim of abuse, violence or bullying	**Yes**	No	**Yes**	No	**Yes**	No
Parents separated /divorced/ left	No	No	**Yes**	No	No	No
Moved/attended new school	No	No	**Yes**	No	No	No
Parents/family argued more than previously	No	No	No	No	**Yes**	No
Family member arrested	**Yes**	**Yes**	No	No	No	No

Note. Yes = statistically significant at the .10 level or below; No = not significant.

Stressful events which had statistically significant associations with later exam scores taken at age 16 are shown in the above table. Stressful events which were not significantly associated with KS4 outcomes are not listed.

Domestic abuse and victimisation outside the home were significantly associated with lower attainment in adolescence. Teenagers who experienced domestic abuse when they were 10 years old and younger had significantly lower scores at ages 14 and 16. Teenagers who experienced victimisation or abuse outside the home at any age, had significantly lower exam scores at ages 14 and/or 16 than their peers who did not experience abuse. Teenagers who experienced domestic abuse and victimisation/abuse outside the home between the ages of 7 and 10 had lower scores at ages 14 and 16, even when previous test scores were taken into account, indicating that they had made less progress than their peers who did not experience abuse.

Parental divorce between the ages of 7 and 10 was associated with lower exam scores at age 16, but this finding was not significant once previous achievement was considered. Teenagers who experienced a stressful move to a new home and school between ages 7 and 10 had lower test/exam scores at ages 14 and 16. At age 14, this relationship remained significant even when taking into account test scores at age 11. Therefore, adolescents who moved in primary school made less academic progress than their peers who did not move. Teenagers whose parents argued more after age 10 had lower scores at ages 14 and 16, but the effect did not persist once previous attainment was taken into account.

Teenagers who experienced homelessness or were placed in care before age 7 had lower scores at age 14, but such associations probably already had an impact on age 11 scores which meant that there was no effect once age 11 attainment was taken into account. Teenagers who had experienced the arrest of a family member before age 7 also had lower scores at age 16, even when previous attainment was taken into account.

4.3.2 Relationship between stressful events and emotional wellbeing at age 13

Table 4.4: Stressful events and emotional well being age 13

Significant Stressful Events	Birth to 7 years		Age 7 to 10 years		Age 10 to 13 years	
	Without controls	With controls	Without controls	With controls	Without controls	With controls
Death of parent	No	No	No	No	**Yes**	**Yes**
Death of family member	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No
Child was ill or injured	No	No	**Yes**	No	No	No
Family member was ill or injured	**Yes**	No	**Yes**	No	**Yes**	No
Saw crime or accident	No	No	**Yes**	No	**Yes**	No
Domestic violence/abuse	**Yes**	No	**Yes**	No	**Yes**	**Yes**
Victim of abuse, violence or bullying	No	No	**Yes**	No	**Yes**	No
Parents separated /divorced/ left	No	No	**Yes**	**Yes**	**Yes**	**Yes**
Parents/family argued more than previously	No	No	No	No	**Yes**	**Yes**
Not seeing parent/siblings as much as usual	No	No	No	No	**Yes**	No
Moved/attended new school	No	No	No	No	**Yes**	**Yes**
Family member arrested	**Yes**	No	**Yes**	No	**Yes**	**Yes**
Homeless/Living in refuge/Foster care	No	**Yes**	No	No	**Yes**	No

Note: Yes = statistically significant at the .10 level or below; No = not significant.

Stressful events which had statistically significant associations with emotional wellbeing measured at age 13 are shown in the above Table 4.4. Stressful events which were not significantly associated with emotional wellbeing are not listed.

Teenagers who experienced bereavement at any age had lower emotional wellbeing at age 13 compared to those who did not lose a family member. This finding remained significant even taking into account emotional wellbeing measured at age 10. This indicates that experiencing the death of a parent or family member in childhood may have continuous, worsening effects on a teenager's emotional wellbeing, long after the event has occurred. While family bereavement was associated with lower emotional wellbeing at any age, interestingly, parental bereavement was only significant when it occurred from 10 years onwards.

The experience of serious illness, either of the child or parent, and involvement in a crime or accident also had a significant association with lower emotional wellbeing at age 13. On the other hand, illness, injury, or accidents were not related to lower emotional wellbeing once the controls were taken into account. This indicates that although these events have long-term negative associations with adolescents' emotional wellbeing, they do not contribute to worsening emotional wellbeing across time.

Abuse, both inside and outside the home, had significant negative associations with emotional wellbeing at age 13, no matter when it occurred. Teenagers who experienced domestic abuse after age 10 also showed negative changes in their emotional wellbeing. Parental separation/divorce at age 7 and onwards had negative associations with emotional wellbeing at age 13, even controlling for emotional wellbeing at age 10. This suggests that parental separation or divorce was associated with worsening wellbeing as children entered adolescence.

Adolescents who experienced parental conflict at age 10 and onwards had lower emotional wellbeing at age 13, even controlling for emotional wellbeing at age 10. This suggests that parental conflict may be associated with negative changes in emotional wellbeing for teenagers.

Not seeing parents or siblings as much as usual from age 10 was associated with lower emotional wellbeing at age 13.

Attending a new school and moving at age 10 or older was associated with lower emotional wellbeing at age 13, taking into account emotional wellbeing at 10 years. This indicates that adolescents who had a stressful move to a new home and school during this period experienced negative changes in emotional wellbeing at age 13.

Teenagers who experienced the arrest of a family member, at any age, had lower emotional wellbeing at 13 years. Those who experienced this after age 10 showed negative changes in their emotional wellbeing at age 13.

Young people who experienced homelessness or had been placed in foster care early in life (before age 7) had continuing, worsening emotional wellbeing from ages 10 to 13.

Teenagers who were homeless or placed in care after age 10 had lower emotional wellbeing than their peers.

4.3.3 Relationship between stressful events and behavioural wellbeing at age 13

Table 4.5: Stressful events and behavioural wellbeing at age 13

Significant Stressful Events	Birth to 7 years		Age 7 to 10 years		Age 10 to 13 years	
	Without controls	With controls	Without controls	With controls	Without controls	With controls
Death of parent	No	No	No	No	**Yes**	**Yes**
Death of family member	No	No	**Yes**	No	**Yes**	**Yes**
Child was ill or injured	No	No	No	No	**Yes**	No
Family member was ill or injured	**Yes**	No	**Yes**	No	**Yes**	No
Saw crime or accident	No	No	**Yes**	No	**Yes**	No
Domestic violence/abuse	**Yes**	No	**Yes**	No	**Yes**	**Yes**
Victim of abuse, violence or bullying	**Yes**	No	**Yes**	**Yes**	**Yes**	**Yes**
Parents separated /divorced/ left	No	No	**Yes**	**Yes**	**Yes**	**Yes**
Not seeing parent/siblings as much as usual	No	No	No	No	**Yes**	**Yes**
Parents/family argued more than previously	No	No	**Yes**	No	**Yes**	**Yes**
Moved/attended new school	No	No	**Yes**	No	**Yes**	**Yes**
Family member arrested	No	No	**Yes**	No	**Yes**	**Yes**
Homeless/Living in refuge/Foster care	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Note: Yes = statistically significant at the .10 level or below; No = not significant.

Stressful events which had statistically significant associations with later behavioural wellbeing measured at age 13 are shown in the above table. Stressful events which were not significant are not listed.

Teenagers who experienced bereavement from age 7 onwards had lower behavioural wellbeing at age 13 compared to those who did not suffer such a tragedy. Teenagers who experienced the death of a parent or family member after the age of 10 had negative changes in their behavioural wellbeing at age 13.

Childhood illness after the age of 10 was associated with lower behavioural wellbeing at age 13. Teenagers who experienced a serious illness in the family had lower behavioural wellbeing, no matter what age it occurred. Teenagers who saw a crime or accident from age 7 onwards had lower behavioural wellbeing at 13 compared to their peers who did not. However, neither illness nor seeing a crime/accident was associated with negative changes in behavioural wellbeing across time.

Abuse, both inside and outside the home, had a significant negative association with behavioural wellbeing at age 13, no matter when it occurred. Teenagers who experienced domestic abuse after age 10 also showed negative changes in their behavioural wellbeing, taking into account previous wellbeing. Teenagers who suffered victimisation or abuse outside the home after age 7 showed worsening behavioural wellbeing at age 13.

Parental separation/divorce at age 7 and onwards had negative associations with behavioural wellbeing at age 13, even controlling for wellbeing at age 10. This indicates that parental separation and divorce was related to worsening behavioural wellbeing as children approach adolescence.

Teenagers who witnessed parents arguing more than usual after the age of 7 onwards had lower behavioural wellbeing. Furthermore, teenagers who experienced parental conflict at age 10 and onwards had worse behavioural wellbeing at age 13, even controlling for wellbeing at age 10. This suggests that parental conflict may be associated with negative changes in emotional wellbeing for teenagers.

Not seeing parents or siblings as much as usual from age 10 was associated with negative changes in behavioural wellbeing at age 13.

Teenagers who moved home and joined a new school at age 7 or older had lower behavioural wellbeing at age 13 than their peers who did not move. Also, moving and attending a new school at age 10 or older was associated with negative changes in behavioural wellbeing at age 13.

Teenagers who experienced the arrest of a family member from age 7 onwards had lower behavioural wellbeing at 13 years. Teenagers who had this experience after age 10 showed negative changes in their behavioural wellbeing at age 13.

Those experiencing homelessness or foster care at any age had lower behavioural wellbeing than their peers. When this occurred before age 7, children had continuing, worsening

behavioural wellbeing from ages 10 to 13. Teenagers who were homeless or placed in care after age 10 also experienced negative changes in their behavioural wellbeing at age 13.

4.3.4 Relationship between stressful events and social wellbeing at age 13

Table 4.6: Stressful events and social wellbeing at age 13

Stressful Event	Birth to 7 years		Age 7 to 10 years		Age 10 to 13 years	
	Without controls	With controls	Without controls	With controls	Without controls	With controls
Death of family member	**Yes**	**Yes**	**Yes**	No	No	No
Child was ill or injured	**Yes**	No	No	No	No	No
Family member was ill or injured	**Yes**	No	**Yes**	No	No	No
Saw crime or accident	No	No	**Yes**	No	No	No
Domestic violence/abuse	**Yes**	No	**Yes**	No	**Yes**	**Yes**
Victim of abuse, violence or bullying	No	No	**Yes**	No	**Yes**	**Yes**
Parents separated /divorced/ left	No	No	**Yes**	**Yes**	**Yes**	**Yes**
Parents/family argued more than previously	No	No	**Yes**	No	**Yes**	No
Not seeing parent/siblings as much as usual	No	No	**Yes**	**Yes**	**Yes**	**Yes**
Moved/attended new school	No	No	**Yes**	No	**Yes**	**Yes**
Family member arrested	No	**Yes**	**Yes**	**Yes**	**Yes**	No
Homeless/Living in refuge/Foster care	**Yes**	No	No	No	**Yes**	**Yes**

Note. Yes = statistically significant at the .10 level or below; No = not significant.

Stressful events which had statistically significant associations with later social wellbeing measured at age 13 are shown in Table 4.6. Stressful events which were not significantly associated with wellbeing at age 13 are not listed.

Teenagers who experienced a death in the family when they were 10 years or younger had lower social wellbeing at age 13. When the bereavement occurred before the age of 7, their social wellbeing worsened from ages 10 to 13.

Illness in early childhood (before the age of 7) was associated with significantly lower social wellbeing at 13. Experiencing illness of parents or other close family members before the age of 10 was also associated with lower social wellbeing at age 13.

Seeing a crime or accident between the ages of 7 and 10 was associated with lower social wellbeing at age 13.

Abuse, at any age, was associated with lower social wellbeing at 13 years. Teenagers who experienced domestic abuse, no matter when it occurred, had lower social wellbeing later. Victimisation between the ages of 7 and 10 was associated with lower social wellbeing later. When either domestic abuse or victimisation outside of the home occurred between the ages of 10 and 13, children had negative changes in their social wellbeing.

Teenagers who experienced parental separation and divorce after the age of 7 had negative changes in their social wellbeing at 13, controlling for previous social wellbeing at 10. Similar findings were shown for not seeing parents or siblings as much as usual. Parental conflict from 7 onwards was associated with lower social wellbeing as well, but this was not significant once previous social wellbeing was taking into account.

Teenagers who moved home and attended a new school from the age of 7 also had lower social wellbeing at age 13 compared to their peers who did not move. When teenagers moved between the ages of 10 and 13, they showed negative changes in their social wellbeing during this period.

Experiencing the arrest of a family member, at any age, was associated with lower social wellbeing. When the arrest occurred before the age of 10, teenagers had worsening social wellbeing as they grew older.

Homelessness or being placed in care before the age of 7 was associated with lower social wellbeing at age 13. Teenagers who were homeless or placed in care after the age of 10 showed negative changes in their social wellbeing from ages 10 to 13.

4.3.5 Relationship between stressful events and school wellbeing at age 13

Table 4.7: Stressful events and school wellbeing at age 13

Significant Stressful Events	Birth to 7 years		Age 7 to 10 years		Age 10 to 13 years	
	Without controls	With controls	Without controls	With controls	Without controls	With controls
Victim of abuse, violence or bullying	No	No	**Yes**	**Yes**	**Yes**	No
Attended new school /moved	**Yes**	No	**Yes**	No	No	No
Parents/family argued more than previously	No	No	**Yes**	No	No	No
Family member arrested	No	No	n/s	No	**Yes**	No
Homeless/Living in refuge/Foster care	No	No	n/s	No	**Yes**	**Yes**

Note. Yes = statistically significant at the .10 level or below; No = not significant.

Stressful events which had statistically significant associations with later school wellbeing measured at age 13 are shown in Table 4.7. Stressful events which were not significantly associated with school wellbeing at age 13 are not listed.

Teenagers who suffered victimisation outside the home at age 7 and onwards had lower school wellbeing than other children. When the abuse occurred between the ages of 7 and 10, children experienced worsening school wellbeing from ages 10 to 13.

Moving and attending a new school before the age of 7 had a positive association with school wellbeing. However, when the move occurred between the ages of 7 and 10, there was a negative association.

Teenagers whose parents argued more frequently from 7 to 10 years had lower school wellbeing at age 13 than their peers.

The arrest of a family member between the ages of 10 to 13 years was associated with lower school wellbeing at age 13.

Teenagers who were homeless or placed in foster care experienced negative changes in their school wellbeing from ages 10 to 13.

4.4 Summary

Our findings show that infrequent but highly stressful events such as domestic abuse, victimisation, homelessness, placement in foster care and parental incarceration can have negative associations with adolescents' educational attainment and wellbeing. Teenagers who experienced these stressful events at some point in their childhood had lower test and exam scores and lower emotional, behavioural, social and/or school wellbeing. In many instances, these stressful events remained significantly associated with outcomes, even when prior educational attainment or wellbeing outcomes were taken into account. This implied that these events have escalating and lingering negative impacts as children mature into adolescents, no matter at what age the event occurred.

Bereavement, illness and exposure to an accident or crime were not associated with lower educational attainment and school wellbeing, but these events were associated with lower emotional, behavioural, and social wellbeing for teenagers, which varied depending on timing of the stressful event and the specific dimension of wellbeing. Family bereavement had continuous, cumulative effects on children's emotional and social wellbeing, long after the event happened. On the other hand, serious illness, injury, or accidents were not related to lower wellbeing once the controls were taken into account, indicating that although these events have negative effects on adolescents' wellbeing, they do not contribute to negative changes in wellbeing across time. Teenagers who suffered bereavement of a family member often had worse wellbeing than those who suffered a parental bereavement. This may, however, be a statistical artefact of the greater numbers of children who experienced family bereavement.

Stressful family events which created instability in children's and teenagers' lives, such as parental divorce, parental conflict and not seeing parents or siblings as much as usual also had significant associations with teenagers' outcomes, especially when these events occurred after early childhood (age 7 and onwards). Parental separation/divorce had negative associations with achievement at age 16 as well as emotional, behavioural and social wellbeing at age 13. For wellbeing, these associations continued to be significant, even controlling for previous wellbeing, free school meals eligibility, and SEN. Teenagers who experienced parental conflict also had lower test and exam scores and emotional, behavioural, and/or social wellbeing. Family separation, in terms of not seeing parents or siblings as much as usual, was also related to lower emotional, behavioural, and social wellbeing in early adolescence. These findings highlight the continuing significance of family separation, conflict and dissolution on the educational attainment and wellbeing outcomes of young adolescents. Interestingly, family separation, conflict and dissolution in early childhood (before age 7) were not related to worse outcomes in adolescence. This suggests that younger children are less affected by family problems than older children, who might be more able to remember their parents and siblings together and understand the implications more fully.

Moving home and joining a new school after the age of 7 was associated with worse educational attainment and wellbeing outcomes, for the most part. Interestingly, attending a new school in early childhood was associated with more positive feelings about school in adolescence, perhaps because parents moved their children to a better area before the start of primary school. However, teenagers who moved schools outside the normal transitions between primary and secondary school after the age of 7 had lower educational attainment and wellbeing outcomes than their peers whose families did not report moving. Furthermore, teenagers who moved schools between the ages of 7 and 10 made less academic progress between KS2 and KS3, and teenagers who moved within secondary school experienced negative changes in their wellbeing, compared to teenagers who did not move outside normal school transition points. These findings suggest that moving and attending a new school during primary school age may be disruptive for children's learning, having long-term, worsening effects on their progression even once they transfer to secondary school.

5. Conclusions

Children can experience a range of potentially stressful situations. These may have consequences for cognitive, educational, emotional and behavioural outcomes. Moreover, the impact of any single stressor may impact on one or two but not all of these dimensions of their lives.

This analysis has shown how children can be resilient across multiple domains, as well as how the challenges of complex family circumstances or stressful life events can have consequences for their outcomes and achievement. From a practice point of view it is worth noting the resilience many children show, but also how this may co-exist with poorer outcomes in another dimension. The approach of both parts of this report, exploring multiple domains of children's lives, has highlighted this finding.

The research on age 7 outcomes is, by and large, consistent with earlier analysis. It shows that a wide range of family and parental characteristics are associated with one or more child outcome, but few are consistently associated with all outcomes. Moreover, the results largely confirmed the pattern highlighted in earlier analyses of the MCS that, in a nutshell, both parenting and poverty matter for children's outcomes.

Tackling child poverty and supporting positive parenting are thus both important for ensuring children achieve their potential. However, there are few family or parental characteristics where intervention would lead to closing the gap between advantaged and disadvantaged children: positive parenting behaviours are equally positive for all children.

The analysis was able to include a range of measures of fathers' characteristics and behaviours. While relatively few of these were associated with children's outcomes, father's reading to the 7-year-old more frequently was associated with better verbal skills over and above how much the mother read to the child. The effect of a father reading to the child on their verbal skills was about half that of having a highly educated mother, but about the same as the effect of not being poor compared to being poor. Conversely, where the father had poor basic skills, this was associated with the child having poorer verbal skills, maths skills and lower KS1 scores, other things being equal. Where there are two parents in the family, the combination of parental attributes and behaviours does have a bearing on children's outcomes.

KS1 scores might be expected to be more independent of family context and parenting than cognitive ability measures, once the child had been in school for a few years. The factors that are associated with KS1 outcomes are also likely to be important for subsequent educational attainment. Child disability, an increasing number of siblings, having a depressed mother, having a father with limited literacy skills, and being frequently disciplined were all significant risk factors and associated with lower KS1 scores. The scale of the effects indicated that each additional sibling reduced KS1 scores by about the same amount as being in poverty, holding all factors constant; but the impact of disability on KS1 scores was somewhat larger. Having three siblings compared to no siblings was commensurate with the disadvantage associated with having a mother with no qualifications rather than a highly qualified mother, other things being equal. On the positive side, having a highly

educated mother, living in owner occupation, having more rooms in the house, mother reading to the child more often, enforcement of rules, and having grandparents willing to help out financially if needed were all associated with higher KS1 scores. This tends to suggest that children's learning is promoted not only by specific parental behaviours, but also in contexts where there is some degree of financial security and support.

In relation to children's age 13 wellbeing and the role of stressful life events, it is clear that children can experience a range of stressful events across their childhoods, including some extreme experiences, though fortunately this is true for only a minority of children. Extreme stressful events, such as homelessness, victimisation or abuse, can have long-term effects on child wellbeing. Moreover, some stressful events impact on children's emotional and social wellbeing but not their educational outcomes: the negative impacts on their wellbeing may thus more easily be missed. A number of stressful events appear to have no long-term impacts on the outcomes measured here, if they occur at young ages. Those that occur later than age 7 tend to be more likely to have an impact on adolescent outcomes that they occur closer to in time.

The MCS analysis showed that the majority of the factors identified as being associated with worse outcomes for children at younger ages continued to be important at age 7. This confirms both that negative circumstances can be set in place early, but also that negative family circumstances are typically long-standing. The ALSPAC analysis looked at the associations with single key events. However, the teenage analysis suggests, especially in its findings of long-term consequences for some events, that it is chronic family circumstances or changes in circumstances that are most significant. Examples are losing or gaining family members through family dissolution; or the vulnerability of families where children are taken into local authority care.

A final point to take away from the analysis is the diversity of children in both their attainment and their emotional resilience. While there are clearly a number of family and contextual factors that are associated with doing 'less well' in some way, some of which may be susceptible to intervention, these factors and characteristics are not deterministic. That is, some children do relatively well despite unpromising circumstances and some do relatively poorly despite having a good start and little in the way of stressful experiences. There are big differences in children's outcomes and only a part of those differences can be straightforwardly accounted for by the presence or absence of family stressors.

There is also diversity in children's circumstances. While negative factors are often associated with each other, such as poverty and lower qualifications (and similarly for positive factors), few children experience easily predictable combinations of stressors.

For both these reasons, the findings are helpful in flagging up areas where children in certain circumstances risk faring badly on some outcomes, and where interventions may be justifiably targeted, but those interventions will also have to be sensitive to the specifics of the case.

References

Armstrong, M. I. & Boothroyd, R. A. (2008). Predictors of emotional wellbeing in at-risk adolescent girls: Developing preventive intervention strategies. *Journal of Behavioral Health Services and Research, 35*(4), 435-453.

Atzaba-Poria, N., Pike, A., and Deater-Deckard, K. (2004). Do risk factors for problem behaviour act in a cumulative manner? An examination of ethnic minority and majority children through an ecological perspective. *Journal of Child Psychology and Psychiatry, 45*(4), 707-718.

Burchinal, M., Roberts, J. E., Zeisel, S. A., Hennon, E. A., and Hooper, S. (2006). Social risk and protective child, parenting, and child care factors in early elementary school years. *Parenting-Science and Practice, 6*(1), 79-113.

Bynner, J. (2001). Childhood risks and protective factors in social exclusion. *Children and Society, 15*(5), 285-301.

Caspi, A., Moffitt, T. E., Wright, B. R. E., and Silva, P. A. (1998). Early failure in the labour market: childhood and adolescent predictors of unemployment in the transition to adulthood. *American Sociological Review, 63*, 424-451.

Connelly, R. (2011) *Drivers of Unhealthy Weight in Childhood: Analysis of the Millennium Cohort Study*. Edinburgh: Scottish Government Social Resarch.

Dearing, E., McCartney, K., Weiss, H. B., Kreider, H., and Simpkins, S. (2004). The promotive effects of family educational involvement for low-income children's literacy. *Journal of School Psychology, 42*(6), 445-460.

Dickerson, A. and Popli, G. (2012) Persistent poverty and children's cognitive development: Evidence from the UK Millennium Cohort Study. CLS Working Paper, 2012/2. London: Institute of Education.

Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., and Huston, A. C. (2007). School readiness and later achievement. *Developmental Psychology, 43(6)*, 1428-1446.

Ermisch, J. (2008). Origins of social immobility and inequality: parenting and early child development. *National Institute Economic Review, 205*, 62-71.

Feinstein, L., and Bynner, J. (2004). The importance of cognitive development in middle childhood for adulthood socioeconomic status, mental health, and problem behavior. *Child Development, 75(5)*, 1329-1339.

Feinstein, L., and Duckworth, K. (2006). Development in the early years: its importance for school performance and adult outcomes. WBL Research Report No. 20, London: Centre for Research on the Wider Benefits of Learning.

Flouri, E., Tzavidis, N., and Kallis, C. (2010). Adverse life events, area socioeconomic disadvantage, and psychopathology and resilience in young children: The importance of risk factors' accumulation and protective factors' specificity. *European Child & Adolescent Psychiatry, 19*(6), 535-546.

Ford, T., Collishaw, S., Meltzer, H., & Goodman, R. (2007). A prospective study of childhood psychopathology: independent predictors of change over three years. *Social Psychiatry and Psychiatric Epidemiology, 42*(12), 953-961.

Geoffroy, M. C., Cote, S. M., Giguere, C. E., Dionne, G., Zelazo, P. D., Tremblay, R. E., Boivin, M., and Seguin, J. R. (2010). Closing the gap in academic readiness and achievement: The role of early child care. *Journal of Child Psychology and Psychiatry, 51*(12), 1359-1367.

Gerard, J. M., and Buehler, C. (2004). Cumulative environmental risk and youth maladjustment: The role of youth attributes. *Child Development, 75*(6), 1832-1849.

Gutman, L. M., Brown, J., Ackerman, R., and Obolenskaya, P. (2010). *Change in wellbeing from childhood to adolescence: Risk and resilience*. London: Centre for Research on the Wider Benefits of Learning

Gutman, L. M., Sameroff, A. J., and Eccles, J. S. (2002). The academic achievement of african american students during early adolescence: An examination of multiple risk, promotive, and protective factors. *American Journal of Community Psychology, 30*(3), 367-399.

Hall, J. E., Sammons, P., Sylva, K., Melhuish, E., Taggart, B., Siraj-Blatchford, I., and Smees, R. (2010). Measuring the combined risk to young children's cognitive development: An alternative to cumulative indices. *British Journal of Developmental Psychology, 28*(2), 219-238.

Hobcraft, J., and Kiernan, K. E. (2010). Predictive factors from age 3 and infancy for poor child outcomes at age 5. Relating to children's development, behaviour, and health: Evidence from the millennium cohort study. York: University of York

Kiernan, K. E., and Huerta, M. C. (2008). Economic deprivation, maternal depression, parenting and children's cognitive and emotional development in early childhood. *British Journal of Sociology*, 59(4), 783-806.

Kiernan, K. E., and Mensah, F. K. (2009). Poverty, maternal depression, family status and children's cognitive and behavioural development in early childhood: A longitudinal study. *Journal of Social Policy*, 38, 569-588.

Li, S. T., Nussbaum, K. M., and Richards, M. H. (2007). Risk and protective factors for urban african-american youth. *American Journal of Community Psychology*, 39(1-2), 21-35.

Sabates, R., and Dex, S. (2012). Multiple risk factors in young children’s development. CLS Working Paper 2012/1. London: Institute of Education.

University of London. Institute of Education. Centre for Longitudinal Studies, Millennium Cohort Study: Fourth Survey, Teacher Survey, 2008 [computer file]. Colchester, Essex: UK Data Archive [distributor], August 2011. SN: 6848 , http://dx.doi.org/10.5255/UKDA-SN-6848-1.

Washbrook, E. (2010). Early environments and child outcomes: an analysis commission for the Independent Review on Poverty and Life Chances. Centre for Market and Public Organization, Unversity of Bristol.

Wells, N. M., & Evans, G. W. (2003). Nearby Nature: A Buffer of Life Stress among Rural Children. *Environment and Behavior, 35*, 311-330.

Appendix

Annex Table 1: Risk / promotive / protective factors used in analysis

Unless otherwise specified, variables are from MCS3, the age 5 sweep of MCS.

	Variable	Variable Description	Response Coding
CHILD FACTORS	Child has a longstanding illness or disability	Child has longstanding illness or disability	*No*
			Yes
	The more hours child watches TV	Hours per week child watches television, videos or DVDs	*None*
			Less than an hour
			1 hr to less than 3 hrs
			3 hrs to less than 5 hrs
			5 hrs to less than 7 hrs
			7 hrs or more
FAMILY CHARACTERISTICS	Mother is lone parent (on one or more previous occasions)	Number of sweeps as lone parent (MCS 1 to 3)	*0 - 2*
	The more siblings the child has	Number of siblings in household at MCS1	*0 - 7+*
	Change in number of siblings between prior surveys	Number of siblings at MCS2 minus number at MCS1, or at MCS 3 minus MCS 2	*-5 - 7* (negative numbers indicate loss of siblings)
	At least one parent is in employment	Family work status: at least one parent working	*No parent in work*
			At least one parent in work
	Mother / father has higher level of qualifications	Highest parental qualification	*None*
			NVQ1
			NVQ2
			NVQ3
			NVQ4
			NVQ5

	Variable	Variable Description	Response Coding
	Mother (*father) has difficulty with basic reading	Mother (*father) has difficulty with reading aloud from a child's reading book	*No*
			Yes
	Mother (*father) has difficulty with basic maths	Mother (*father) has difficulty telling if gets correct change at a shop	*No*
			Yes
	Mother suffers from depression	Score on Kessler	*6 - 30*
	Mother (*father) has longstanding illness or disability	Mother (*father) has longstanding illness or disability	*No*
			Yes
	Family was in poverty on one or more previous occasions	Was poor (below 60% of median equivalised income) at one or more sweeps (any of MCS 1 to 3)	*No*
			Yes
	Family is on means-tested benefits	Received means-tested benefits (any of Jobseeker's Allowance, income support, and working tax credit)	*No*
			Yes
	Family has difficulty affording items	Have trouble affording items (e.g., holidays, weatherproof coat, all-weather shoes)	*0 - 5* (number of items can't afford)
	Family is behind with their bills	Behind on at least one bill or payment	*No*
			Yes
	Family rents privately, is owner-occupier of home or rents from local authority	Housing tenure	*Rent from Local Authority*
			Rent privately
			Own
	The more rooms there are in the child's home	Number of rooms in home (excluding bathrooms)	*1 - 9+*
FAMILY INTERACTIONS/ BEHAVIOUR	Mother (*father) smokes	Mother (*father) uses tobacco products	*No*
			Yes
	Mother (*father) drinks alcohol more	How often mother (*father) usually	*Never (0)*
			through

	Variable	Variable Description	Response Coding
	regularly	drinks alcohol	*every day (6)*
	Mother (*father) uses drugs	Mother (*father) has used recreational drugs in the past year	*Never*
			Occasionally or regularly
	Mother (*father) considers s(he) is a good parent	How mother (*father) feels she/he is as a parent	*Not very good at being a parent* (1)
			through
			a very good parent (5)
	Mother (*father) reads to child more often	How often mother (*father) reads to child	*Not at all (1)*
			through
			every day (6)
	Mother (*father) says they are close to child	Mother (*father) report of how close they would say they are to child	*Not very close (1)*
			through
			Extremely close (4)
	Mother (*father) is happy about amount of time spent with child	Mother's (*father's) feeling about amount of time spent with child	*Too much time with child (1)*
			through
			Nowhere near enough time (5)
	Child is disciplined more often	How often uses eight forms of discipline with child	8 - 40 (*Never* to *daily* for each item)
	Family has many rules	Family has many rules as measured at MCS2	*Not many rules*
			Lots of rules
	Rules are strictly enforced	Rules strictly enforced as measured at MCS2	*Not very strictly enforced*
			Strictly enforced
	Parent(s) have contact with school	Parent has been to parents' evening or arranged a meeting with the school this school year	*No*
			Yes
	Mostly a language other than English used at home	Language at home (English, English and other, Other)	*English only*
			English and other language
			Mostly/only other language
	Child is cared for regularly by grandparents	Cared for by grandparents on weekends of a typical term-time week	*No*
			Yes

	Variable	Variable Description	Response Coding
	Child is cared for regularly by non-resident parent	Cared for by non-resident parent at weekends of a typical term-time week	*No* *Yes*
	Child is cared for regularly by other relatives	Cared for by other relatives at weekends	*No* *Yes*
	Child is cared for regularly by friends/neighbours	Cared for by friends/neighbours at weekends	*No* *Yes*
	*Father looks after child on own more often	*How often father looks after child on own	*Not at all (1)* through *every day (6)*
PEER FACTORS	Child sees friends more often outside school	How often child spends time with friends outside school	*Not at all (1)* through *every day/almost every day (6)*
SOCIAL SUPPORT	Mother friends with other parents in the area	Mother friends with any other parents who live in the area	*No* *Yes*
	Friends/family live in the area	Mother has other friends or family who live in the area	*No* *Yes*
	Mother spends more time with friends in past week	How often mother spent time with friends in past week	*None (0)* through *every day (3)*
	Grandparents, other relatives, or friends *do* help financially	Receive regular cash help from parents, other family, or friends	*No* *Yes*
	Grandparents *would* help financially if needed, *measured at age 3 survey*	If needed, family would help financially if they could (MCS2)	*Strongly agree (1)* through *Strongly disagree (5)*
NEIGHBOURHOOD/ AREA	Family lives in less deprived neighbourhood (Index of Material Deprivation for ward)	Ward tenth of Index of Material Deprivation score	1 – 10

	Variable	Variable Description	Response Coding
	Area is good for raising children	Area is good to bring up children	*Excellent (1)* through *Very poor (5)*
	Mother feels safe in the area	How safe mother feels the area is	*Very safe (1)* through *Very unsafe (5)*
OUTCOME VARIABLES	Non-verbal skills	British Ability Scales (BAS) Pattern Construction (MCS 4)	Mean=100, SD=15
	Verbal skills	BAS Word Reading (MCS 4)	Mean=100, SD=15
	Maths skills	Progress in Maths (MCS 4)	Mean=50, SD=10
	Behaviour	Strengths and Difficulties Questionnaire Total Difficulties (MCS 4)	*0 – 34*
	KS1 attainment	Key Stage 1 Overall Results (MCS 4)	
CONTROL VARIABLES	Birth weight	Child weight at birth (in kg)	*0.39 - 7.23*
	Child age	Child age at MCS 4 interview (in months)	*76.1 - 100.9*
	Child sex	Child's sex	*Male* *Female*
	Child ethnicity	Child's ethnicity	*White* *Mixed* *Black* *Indian* *Pakistani or Bangladeshi* *Other*
	Child motor delays	Child motor delays measured at 9 months (MCS 1)	*0 - 7*

Note: Those variables marked with a * apply to fathers and were used in couple parent statistical models only. All other variables were used both with the whole sample and in the couple parent models.

Ref: DFE-RR254

ISBN: 978-1-78105-209-9

January 2013