GROWING UP IN SCOTLAND: THE CIRCUMSTANCES AND EXPERIENCES OF 3-YEAR-OLD CHILDREN LIVING IN SCOTLAND IN 2007/08 AND 2013

Growing Up in Scotland

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GROWING UP IN SCOTLAND: CIRCUMSTANCES AND EXPERIENCES OF 3-YEAR-OLD CHILDREN LIVING IN SCOTLAND IN 2007/08 AND 2013

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Responsibility for the opinions expressed in this report, and for all interpretation of the data, lies solely with the authors.

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Introduction

Growing Up in Scotland is a large-scale longitudinal research project which is currently tracking the lives of two cohorts of Scottish children from the early years, through childhood and beyond. The study is funded by the Scottish Government.

This report draws on data provided by parents of children in Birth Cohort 1 (BC1) and Birth Cohort 2 (BC2). BC1 participants were recruited to the study in 2005/06 when the child was aged 10 months and BC2 children were recruited during 2011 when the child was aged 10 months. This report presents data collected at the age 3 interviews which took place in 2007/08 with parents of BC1 children and during 2013 with parents of BC2 children.

This report compares the circumstances and experiences of children aged 3 in Scotland in 2007/08 with those at the same age in 2013. It looks at key outcomes and behaviours such as child health; child development; child television viewing; support provided to parents and parental health and how these vary by socio-economic characteristics (equivalised household income, area deprivation, maternal age and parental level of education). This type of comparison provides an opportunity to examine whether and how these circumstances and experiences have changed for children and families in Scotland over time. Furthermore, the report explores whether the level and nature of change varies amongst children and families with different characteristics and whether there has been any progress in closing any gaps in outcomes between children from different socio-economic backgrounds.

Key findings

The key findings from each section of the report are summarised below. They focus on the experiences and outcomes of children aged 3 in 2007/08 (BC1) and 2013 (BC2).

Overview: Scottish children at age 3

- The majority of children in both cohorts were born to mothers who were aged between 20 and 39 years old. Mothers in BC2 were more likely to be in their twenties (41% for BC1, 46% for BC2) and less likely to be in their thirties (48% for BC1, 44% for BC2) or aged under 20 (8% for BC1, 6% for BC2).

- Children in BC2 were more likely than children in BC1 to be living in households with at least one adult educated to degree level (42% versus 34%). Only a small proportion of children lived in households where no parent held any qualifications.

- In both 2007/08 and 2013, approximately one in five 3-year-old children lived in single-parent households (BC1 19%, BC2 21%).

- At age 3, a lower proportion of BC2 children (67%) than BC1 children (72%) lived in a household where at least one parent worked full-time. This change appears to be due to a decrease in the proportion of partners (in most cases fathers) who worked full-time (86% in BC1 compared with 83% in BC2). By comparison, there was a slight increase in full-time employment among main carers, from 14% in BC1 to 16% in BC2.

Child health

- The vast majority of 3-year-old children living in Scotland in 2007/08 and 2013 were assessed by their main carer as having either good or very good health (BC1 94%, BC2 95%).

- For both BC1 and BC2, children from more advantaged circumstances (high household income, least deprived areas) were more likely to be reported as having good health.

- There was a statistically significant difference across the cohorts in the nature of the relationship between maternal age and child health. In BC1, children born to teenage mothers were less likely than other children to be assessed as having very good health. However, in BC2, the opposite relationship was found: children born to teenage mothers were more likely to be reported as having very good health.

- BC2 children were more likely than BC1 children to have a long-term health condition (BC1 14%, BC2 17%).

- Previous analysis of GUS data collected when BC1 were aged 10 months did not find any relationship between area deprivation and prevalence of longstanding illnesses or disabilities. By age 3, however, in both cohorts there was a relationship: children living in the most deprived areas were more likely to have a longstanding illness or disability than those living in the least deprived areas.

- BC2 children whose parents were educated to at least degree level were more likely to have had accidents than children whose parents had lower level or no qualifications. This relationship was not apparent amongst BC1 families.

Child development

- Parents were asked whether or not the cohort child was able to undertake a range of tasks representing developmental milestones by the time of the interview (shortly before the child's third birthday). 14% of children could complete all tasks, 20% were unable to complete one, 22% were unable to complete two and 44% were unable to complete three or more. There was no statistically significant difference between the cohorts.

- In both cohorts, children living in more advantaged circumstances were more likely to be reported as unable to complete three or more tasks than those living in less advantaged circumstances. The nature of the relationship between measures of advantage and achieving developmental milestones did not change between cohorts.

- The direction of the relationship is opposite to that usually observed - more advantaged children tend to be reported as having better health and development. Two tasks were found to be the main drivers of this: whether the child could put on a t-shirt alone and whether the child could get dressed alone. For both of these items, in each cohort, as income increased the likelihood of a child being able to complete the task decreased. Given the nature of these items – each involving the child getting dressed – differences here may be more a reflection of parenting practices and/or the wider context of the household rather than down to differences in the child's development.

- Cognitive ability was measured in both cohorts via two assessments: the naming vocabulary and picture similarities subtests of the British Ability Scales (BAS).

- Children in BC2 had a slightly higher vocabulary score than children in BC1. Differences in early language ability between the cohorts are being considered in a separate report (Bradshaw et al, forthcoming). This report examines a range of other differences in circumstances and experiences between the cohorts that may influence language ability including the increase in parental education achievement as well as possible differences in parent-child activities that may have been promoted by interventions such as Play Talk Read. Analysis undertaken for that report showed that after differences in level of parental education between cohorts are controlled for, children in BC2 are still more likely than those in BC1 to have a higher vocabulary ability.

- The increase in vocabulary ability between cohorts was experienced by children living in all the different socio-economic sub-groups. Although we saw a slightly greater improvement in the lowest income group than the highest, with regard to area deprivation the increase was slightly lower in the most deprived SIMD (Scottish Index of Multiple Deprivation) quintile than in the other areas.

- The results from these analyses suggest differences in ability according to measures of disadvantage remain and there is little to indicate that inequality in terms of early language ability has particularly narrowed between the two cohorts.

- There was no difference in problem solving ability amongst children between the cohorts. However the data show that this was less strongly related to income in BC2 than it was in BC1. This change has occurred because of an improvement among those in the lowest income group as well as a decline among those children in the two highest income groups.

Child television viewing

- The majority of 3-year-olds watched television every day and the proportion doing so increased between 2007/08 and 2013 (81% in BC1 and 86% in BC2).

- The proportion of children who watched three or more hours of television on a weekday increased between the cohorts from 12% (BC1) to 15% (BC2).

- The proportion of children aged 3 watching three or more hours of television over a typical weekend increased substantially from 26% in BC1 to 42% of children in BC2. This increase was seen across all socio-economic groups.

- Time spent watching television was strongly associated with disadvantage (low income households, low levels of parental education and high area deprivation). In both cohorts, children from more disadvantaged households were more likely to watch television for more than 3 hours on a typical weekday and over the course of a weekend.

Parenting support

- Parents in BC2 found it less easy to arrange for someone to look after the cohort child for a few hours during the day at short notice than parents in BC1. 77% of parents in BC1 said it would be very or fairly easy to arrange this sort of care compared with 69% of parents in BC2 and while 17% of parents in BC1 said it would be very or fairly difficult, this increased to 26% in BC2.

- The higher level of difficulty in arranging this type of care amongst parents in BC2 is evident across all socio-economic sub-groups and difficulty increased with socio-economic disadvantage and age of mother. With regard to income and parental education, socio-economic differences were a little more evident in BC2 than they were in BC1.

- Wariness of and reluctance to use sources of parenting support has shown little change across the cohorts. In both cohorts this was more common amongst parents living in more disadvantaged circumstances.

Parental health

- Self-reported levels of excellent health amongst all parents decreased from 21% in BC1 to 17% in BC2. Excellent health in both cohorts was associated with higher parental levels of education, income, older mothers and parents from more affluent areas.

- In both BC1 and BC2 around one in six parents had a longstanding illness or disability.

- There has been no change in the mean physical wellbeing scores amongst parents of 3-year-olds between BC1 and BC2.

- Mean mental wellbeing scores amongst parents have shown a statistically significant increase between 2007/08 and 2013 (from 49.6 to 50.8), which suggests an improvement in the quality of self-reported mental health. This increase was seen across all socio-economic groups.

- A higher score of mean mental wellbeing was associated with a higher level of equivalised household income in both cohorts. There has, however, amongst BC2 parents been a slight and statistically significant narrowing of the gap between the mean mental wellbeing of parents from households in the lowest income quintile compared with households in the highest income quintile.

- In line with trends seen in the wider Scottish population, the proportion of parents of 3-year-olds who smoke has decreased from 28% amongst BC1 parents to 24% amongst BC2 parents. This downward trend has affected all parents regardless of socio-economic circumstances. However, smoking in both cohorts is still more common amongst parents from less advantageous circumstances (low household income, high levels of deprivation, lower educational qualifications) than those in more advantageous circumstances.

chapter 1

INTRODUCTION

This report uses data from the Growing Up in Scotland study to compare the circumstances and experiences of children aged 3 in Scotland in 2007/08 with those at the same age in 2013. This type of comparison provides an opportunity to examine whether and how these circumstances and experiences have changed for children and families in Scotland over time and this data is presented for the first time. Furthermore, the report explores whether the level and nature of change varied amongst children and families with different characteristics. For example, was change more or less likely for children in lower income households or living in areas of high deprivation and how did that change differ from children in higher income households or living in areas of lower deprivation? Such comparisons allow consideration of whether there has been any progress in reducing inequalities in experiences and outcomes for young children in Scotland and whether Scottish Government policies may have influenced change (relevant policy developments are discussed later on in this chapter).

The data presented here from BC2 at age 3 is new data and has not been reported on previously. Whilst some of the BC1 age 3 data has been published previously, this is the first time that the data has been looked at systematically, by different socio-economic groups and seen in comparison with outcomes amongst BC2 children.

In particular, the data on developmental milestones, child television viewing, parental support and some aspects of parental health at age 3 using BC1 is published here for the first time.

1.1 About the Growing up in Scotland study

Commissioned by the Scottish Government Children and Families Analysis Division and managed by ScotCen Social Research, Growing Up in Scotland (GUS) is a large-scale longitudinal research project aimed at tracking the lives of several cohorts of Scottish children from the early years, through childhood and beyond. Underpinned by a wide-ranging purpose, the principal aim of the study is to provide information to support policy-making in Scotland, but it is also intended to be a broader resource that can be drawn on by practitioners, academics, voluntary sector organisations and other interested parties.

The study focused initially on a cohort of 5217 children aged 10 months (Birth Cohort 1 or 'BC1') born in 2004/05, and a cohort of 2859 children aged 34 months - almost 3 years old - born in 2002/03 (the Child Cohort or 'CC'). The first sweep of fieldwork with these cohorts began in April 2005 and annual data collection continued with both cohorts until BC1 children turned 6 years old. In 2011, a new birth cohort was recruited to the study consisting of 6127 children aged 10 months, born in 2010/11 (Birth Cohort 2 or 'BC2'). At this point the study stopped tracking the CC and the frequency of interviews with BC1 dropped to biennial. Parents in BC2 were then interviewed during 2013 when the child was nearly 3 years old.[1]

1 For more information on the GUS survey design and recruitment of the cohorts, see Bradshaw et al., 2013.

Data is collected via a face-to-face interview carried out in participants' homes by specially-trained social survey interviewers using Computer Assisted Personal Interviewing (CAPI). The interviewers read questions from, and enter responses directly into, a laptop computer. From the second sweep onwards, interviewers seek to contact the participant from the previous sweep. The participant is the child's main carer. In virtually all cases, this is the child's natural mother. Consequently, the terms 'parent', 'participant' and 'mother' are virtually synonymous in the analysis that follows.

1.2 The data in this report

A key feature of the study's multiple cohort design is that it permits comparison of results from different cohorts when the children were at the same age. This report draws on information collected from families when the cohort child was approaching his/her third birthday. For BC1, this was during 2007/2008 and for BC2 it was during 2013. In so doing, the report provides a comparison across a range of circumstances and experiences for 3-year-olds in Scotland and their families between the two time points.

GUS has been designed specifically to allow this sort of 'cross-sectional time-series' comparison on selected measures. The cohorts are suitable for comparison because:

- The same sampling approach was used to select eligible families
- The interview was carried out when children were the same age
- The data was collected using the same method (face-to-face CAPI interview)
- Parents were asked the same questions[2]

The cohorts are both comprised of nationally representative samples of children living in Scotland at age 10 months (their age at the first sweep of data collection) and who were born over a specific time period.[3] For BC1, all children were born between June 2004 and May 2005. For BC2, all children were born between March 2010 and February 2011. For simplicity, comparisons in the report refer to BC1 and BC2. However, the results for BC1 should be understood to represent all children living in Scotland aged 3 in 2007/2008 and BC2 as all children living in Scotland aged 3 in 2013.

As such, any statistically significant differences noted in the report should be taken to reflect actual differences in the circumstances and experiences of 3-year-olds and their families. They have not occurred because of differences in the research design for the two cohorts.

Some families who initially took part in GUS did not do so for all of the subsequent sweeps. There are a number of reasons why respondents drop out from longitudinal surveys and such attrition is not random. All of the statistics have been weighted by a specially constructed longitudinal weight to adjust for non-response and sample selection.

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2 If there is any difference between the questions, this is clearly noted in the relevant section.

3 The GUS sample is generated in two stages. The first stage randomly selects geographic areas or clusters and the second stage selects individuals within those clusters. The standard errors are adjusted to take account of the geographic clustering of the sample at the first stage. For more information see Bradshaw et al., 2013.

Both weighted and unweighted sample sizes are given in each table. Standard errors have been adjusted to take account of the cluster sampling.

1.3 Structure of report

Exploring whether and how the circumstances and experiences of 3-year-olds and their families have changed presents an opportunity to consider how Scottish Government policies or other factors may have influenced this change (relevant policy developments are discussed later on in this chapter). However, no detailed policy evaluation is undertaken in this report.

The results are ordered by topic area. These topics have been chosen partly because there is comparable data for both cohorts and because the Scottish Government have identified them as particular areas of interest.

Differences on all measures within a topic area have been examined by cohort and, within each cohort, by four indicators of socio-economic status:

- Equivalised household income;
- Maternal age at the birth of the cohort child;
- Parental level of education;
- Area deprivation (Scottish Index of Multiple Deprivation, SIMD)

Some measures, in particular those on child development, also consider differences between boys and girls.

These socio-economic indicators have been chosen because previous research using GUS data has shown that they play an important role in shaping outcomes for children and families. One of the National Outcomes set out in the Scottish Government's Performance Framework is that significant inequalities in Scottish society are tackled.

Having helped to identify the nature of these inequalities in the early years of a child's life, GUS is an invaluable source of data not only on whether these inequalities persist as children grow older but also whether there has been any progress, across time, in narrowing the gap on experiences of and outcomes for children of the same age.

In addition, the Scottish Government is interested in exploring whether there has been any change specifically amongst key sub-groups of interest such as children with mothers aged under 20, children in the lowest income households and those living in the most deprived areas.

Therefore, a particular focus of the report is to look at the differences between children who live in different socio-economic circumstances and to assess whether any differences evident in outcomes in 2007 (amongst BC1 children) had changed by 2013 (amongst BC2 children).

1.4 Presentation of results

For each table, there is a description of what the table shows and whether or not any differences that are being examined are statistically significant. Where the data in the table indicates that there may be a change in the nature of the relationship between the two cohorts, this was further investigated through logistic regression analysis. Appendix B provides a short explanation of how to interpret the data in the tables.

The relationship between the outcome variable (e.g. health or cognitive ability) and the measure of socio-economic indicator was examined separately for each cohort. This allowed the identification any noteworthy differences in outcomes, within each cohort, between children in different groups. By then comparing the results for BC1 and BC2 we are able to assess if there has been any change in the nature of the relationship between the outcome variable and socio-economic indicator across the cohorts. For example, whether there had been a narrowing or widening of the differences between the different socio-economic groups.

The population or population sub-group being examined in each table is clearly described and the numerical base is also shown. While all results have been calculated using weighted data, the bases shown provide the unweighted counts. It should therefore be noted that the results and bases presented cannot be used to calculate how many respondents gave a certain answer. Due to rounding, it should also be noted that some column percentages may total slightly less or slightly more than 100%.

1.5 The policy landscape

Growing Up in Scotland is a research project developed primarily to support evidence-based policy, with a specific focus on supporting the development of policies and services for children and families. This section provides a brief overview of policy developments that occurred between the time that BC1 children were aged three in 2007/08 and the time BC2 children were the same age in 2013. The policy landscape provides an important backdrop for considering the circumstances and outcomes for 3-year-olds described in this report. It should be noted, however, that without further investigation it is not possible to attribute any of the changes in children's circumstances to changes in policy.

1.6 Improving outcomes in the early years

The most significant changes in the policy landscape likely to have affected outcomes across the two GUS birth cohorts are the Early Years Framework; Equally Well; and Achieving our Potential. These, taken together, form a coherent approach to addressing disadvantage in Scotland.

The Early Years Framework (EYF), published by the Scottish Government (2008a) in Autumn 2008, recognises the significance of a child's early years to their development and makes a commitment to shifting resources away from crisis intervention to prevention and early intervention at the Local Authority level. By January 2011 (two years into the 10 year timescale for the Framework) there was already evidence that services were being redesigned and resources redirected towards the early years (Scottish Government, 2011a). This focus on early intervention and prevention has more recently been followed up by the establishment of the Early Years Taskforce in November 2011, alongside the Early Years

Change Fund in 2012/13, and the Early Years Collaborative[4] in October 2012. Although these more recent developments are expected to have tangible impacts on outcomes in the early years, they were introduced too late to have affected outcomes for BC2 children at age 3.

Equally Well (2008) is a report of the Scottish Government's Ministerial Task Force on Health Inequalities. Though its focus is not restricted to children it nevertheless highlights the early years as a priority area and recommends a number of actions be addressed at this critical stage in life (Scottish Government, 2008b). Equally Well defines child health inequalities in two ways: those related to negative outcomes (such as low birth weight); and those related to exposure to risk factors (such as poor diet, lack of physical exercise, and parental drug or alcohol misuse) that increase the likelihood of, or perpetuate, poor health outcomes. Reviews in both 2010 and 2013 point to the continuing relevance of the Equally Well principles (Scottish Government, 2013).

Achieving Our Potential (2008), the Scottish Government's framework to tackle poverty in Scotland, highlights the risks faced by children and young people who experience poverty. It also acknowledges that many children and young people are being held back by social and economic factors that limit their chances of escaping poverty when they are older (Scottish Government, 2008c). These risks and their potential impact are reiterated in the **Child Poverty Strategy** for Scotland which sets out the Scottish Government's approach to tackling child poverty via maximising household resources, improving children's life chances, addressing area-based disadvantage and working with local partners (Scottish Government, 2011b).

All of these overarching frameworks underline the importance of early intervention and prevention. This emphasis is also visible in initiatives aimed at supporting parents, and over the last decade the Scottish Government and local authorities have introduced a range of legislation, policies and interventions focused on improving parenting capacity through the delivery of parenting support and education (Hutton et al., 2008). The Scottish Government formalised its commitment to better assisting parents through the publication of the National Parenting Strategy in October 2012 which aims to make Scotland the best place in the world in which to grow up. However, even before then (by January 2011), most local authorities had developed formal parenting strategies, including the use of evidence-based parenting programmes (Scottish Government, 2011a).

Getting it Right for Every Child (GIRFEC) is a distinctively Scottish approach to improving outcomes for all children (Scottish Government, 2010). GIRFEC has been a national policy since the completion of the Highland GIRFEC Pathfinder in 2009, and the approach has been adopted to varying degrees by Community Planning Partnerships, independent schools and third sector providers. In 2014, key elements of the GIRFEC approach (wellbeing, Named Person and Child's Plan) were put into statute through the Children and Young People (Scotland) Act 2014. Key aspects of the GIRFEC approach are the emphasis on taking a child-centred approach, an understanding of wellbeing based on the SHANARRI indicators (Safe, Healthy, Achieving, Nurtured, Active, Respected, Responsible and Included),

4 A multi-agency, bottom-up quality improvement programme that aims to improve outcomes for children and their families in Scotland through supporting the use of improvement methodology in children's service planning, service delivery and effective interventions.

and an outcomes-focused approach to prevention and early intervention, with co-ordinated planning of service provision where required.

1.7 The early home learning environment

Between the time that BC1 and BC2 were aged 3, there has been an increased emphasis on promoting home learning – something which previous analyses of GUS has shown is important for children's vocabulary at age 3 (Bradshaw, 2011).

Play, Talk, Read is a Scottish Government campaign which aims to support and encourage parents to stimulate their children from an early age through playing, talking and reading with them on a daily basis. The campaign seeks to achieve this by highlighting the importance of playful interaction for boosting children's development. It provides parents and carers of children aged up to 3 years old, with free or low cost ideas on how to positively engage with their children. The campaign has been delivered through a combination of television, outdoor and online advertising as well as social media and the Play, Talk, Read website. There are also two Play, Talk Read buses that seek to bring the campaign to local communities across Scotland.

The Play, Talk, Read website was launched in Autumn 2009, re-vamped in early 2011 and again in 2014. It contains digital books, an online community and interactive videos. Parents can also register for an online community where they can share experiences with other parents. By the time the website was first launched, the children in BC1 were around 5 years old and therefore outside the target age range for the campaign. However, children in BC2, born in 2010/11 were therefore within the campaign's target age group of 0-3 years.

The Play Talk Read buses provide play areas for young children and their parents or carers, with play workers available to support and encourage activities. They started touring local authorities from 2011 and in 2012 the purpose of the buses expanded to focus on providing play facilities and actively supporting parents and children to play through face-to-face engagement. From April 2012 onwards, bus routes were planned to ensure coverage of areas with high levels of deprivation.

Bookbug is the Scottish Government's early years book gifting programme; a universal scheme run by the Scottish Book Trust. When launched in 2010, Bookbug consisted primarily of gifting book packs to babies, toddlers and ante-preschool children (age 3 years). Packs were distributed to all families in Scotland, typically through their health visitor or early years setting. In addition to this, free song and rhyme sessions are held, often at local libraries. Since 2010 the programme has expanded and a further book pack is now gifted to children when they start primary school and Bookbug now also involves outreach work targeted at children in disadvantaged circumstances.

The programme seeks to promote the importance of books and the benefits of early book sharing. An important aim of the programme is to encourage parents to share books with their child or children from an early age. In addition to laying the foundations of early literacy, Bookbug aims to improve attachment between young children and their parents or carers, as well as to increase children's emotional intelligence, communication and listening skills.

1.8 Early Years intervention programmes

In addition to the policies and initiatives set out above, a number of interventions aimed at improving children's outcomes were introduced after BC2 children were born. These are outlined below, mainly to illustrate that due to the timing and nature of the interventions, any impact on outcomes for BC2 children is likely to be very limited and would, at best, only be of relevance for a small minority of the children born in 2010.

In April 2013, there was a national roll-out of the universal 27-30 month health review. As part of the review, information is collected about a child's development (social, behavioural, communication, gross motor), the child's vision, hearing, height and weight, and any diagnoses or health issues. The review provides an opportunity to work with parents to assess children's wellbeing, provide age appropriate health promotion advice, build parenting capacity, identify needs for support, and facilitate early access to effective interventions.

Prior to the re-introduction of the universal 27-30 month review in April 2013, a review was completed at 2 years of age for children who required additional or intensive support. Families of children who did not require additional or intensive support were invited to contact a designated person in the primary care team if they had any concerns about the child. BC2 children born between October 2010 and February 2011 would have been eligible for the universal 27-30 month health review. Amongst BC1 children and BC2 children born between February and September 2010, however, the majority of children would not have received an offer of a health review around this age, although children who required additional or intensive support may have been offered a health review at age 2.

Another example of an intervention introduced to improve children's outcomes in their first years of life is the Family Nurse partnership (FNP) programme. FNP is offered to young, first time mothers. The women must be 19 or under at the start of the programme and enrolled on the programme by 28 weeks gestation. The programme offers intensive, structured home visiting, delivered by a specially trained nurse from early pregnancy until the child's second birthday. The programme aims to improve pregnancy outcomes, child health and development and parent's economic self-sufficiency. BC2 children born to a teenage mother may have benefitted from this intervention. However, due to a gradual roll-out of FNP across Scotland, only 24 parents in BC2 were supported by FNP.

1.9 Improving outcomes for parents

This report explores outcomes for main carers as well as for their 3-year-old children. In this regard it is worth mentioning that parental behaviours and outcomes may, of course, also be related to wider policies and initiatives. For example, patterns in maternal smoking, discussed in Chapter 8, are likely to have been driven by changes that have affected the wider population, including the ban on smoking in enclosed spaces which was introduced in 2006.

chapter 2

OVERVIEW: SCOTTISH CHILDREN AT AGE 3

This section provides an overview of socio-economic and demographic characteristics of 3-year-old children living in Scotland in 2007/08 and 2013. For each of the two cohorts the section provides information on: parental employment status; receipt of state benefits and tax credits; area deprivation; maternal age at child's birth; level of parental education; and family type.

2.1 Parental employment status

The vast majority of families in BC1 and BC2 obtained a proportion of their income from salaries and wages. Table 3.1 shows employment status at a household level, while Table 3.2 shows employment status for the child's main carer (in most cases the mother) for both cohorts.

Table 3.1 shows that, at age 3, a lower proportion of BC2 children (67%) than BC1 children (72%) lived in a household where at least one parent worked full time. BC2 children were slightly more likely to live in households where no parent worked full time but where at least one parent worked part time (16% in BC2, 13% in BC1). These differences were statistically significant. BC2 children appeared more likely than their BC1 counterparts to live in 'workless' households where neither parent (or the resident parent in a single parent household) were in paid employment (18% in BC2 versus 15% in BC1). However, this difference was not statistically significant.

Table 2.1 Household employment status, by cohort

	BC1 %	BC2 %
At least one parent/carer in full time employment*	72	67
At least one parent/carer in part time employment (no parent in full-time employment)*	13	16
No parent/carer in paid employment	15	18
Unweighted bases	*4167*	*4946*

*Differences by cohort on items marked * are statistically significant at p < .01 or less. All other differences are not statistically significant.*

Table 2.2 shows the employment status of the child's main carer who, in the vast majority of cases, was the child's mother. BC2 main carers were slightly more likely to be in paid employment than main carers in BC1 (62% for BC1, 64% for BC2). Nearly half of main carers (48%) worked part-time. This figure was identical for both cohorts. In terms of full-time employment, BC2 main carers were slightly more likely to be in full-time employment than BC1 main carers (16% versus 14%). This difference was statistically significant.

Table 2.2 Employment status of main carer, by cohort

	BC1 %	BC2 %
In paid employment - full-time (> = 35 hours per week)*	14	16
In paid employment - part-time (< 35 hours per week)	48	48
Not in paid employment	38	36
Unweighted bases	*4190*	*5008*

*Differences by cohort on items marked * are statistically significant at p < .05 or less. All other differences are not statistically significant.*

As Table 2.3 shows, partners of the respondent (in most cases, this was the child's biological father) were less likely to be working full time in BC2 than in BC1 (83% compared with 86%). As such, the drop in the proportion of children living in households where at least one parent was in full-time employment seems to have been driven primarily by a shift in employment status of partners, rather than mothers.

Table 2.3 Employment status of partner, by cohort

	BC1 %	BC2 %
In paid employment - full-time (> = 35 hours per week)*	86	83
In paid employment - part-time (< 35 hours per week)*	6	7
Not in paid employment	8	10
Unweighted bases	*3465*	*4013*

*Differences by cohort on items marked * are statistically significant at p < .01 or less. All other differences are not statistically significant.*

2.2 Receipt of state benefits and tax credits

Table 2.4 shows the proportion of families in each cohort in receipt of various types of state benefits and tax credits. In both BC1 and BC2 around one in seven families received some sort of 'out of work' benefit (either Income Support or Job Seeker's Allowance).

BC2 families were more likely to receive housing benefit than BC1 families (19% in BC2 compared with 14% in BC1) and council tax benefit (18% in BC2 compared with 15% in BC1). However, receipt of Working and Child Tax Credits was lower amongst families in BC2 than in BC1. This is likely to reflect the lower thresholds for withdrawal of Tax Credits introduced in 2011 (Bradshaw et al., 2013).

Table 2.4 % of families in receipt of benefits and tax credits, by cohort

	BC1 %	BC2 %
Child Tax Credit*	68	46
Unweighted bases	*4060*	*5002*
Working Tax Credit*	24	18
Unweighted bases	*4060*	*5002*
Housing Benefit*	14	19
Unweighted bases	*4087*	*5013*
Council Tax Benefit	15	18
Unweighted bases	*4087*	*5013*
Income Support	13	13
Unweighted bases	*4087*	*5013*
Job Seeker's Allowance*	1	2
Unweighted bases	*4087*	*5013*

*Differences by cohort on items marked * are statistically significant at $p < .01$ or less. All other differences are not statistically significant.*

2.3 Area deprivation (SIMD)

GUS measures area deprivation using the Scottish Index of Multiple Deprivation (SIMD). SIMD identifies small area concentrations of multiple deprivation across Scotland based on a range of factors including income, employment, health, education, access to services, housing, and crime. Areas are listed from the most to the least deprived and divided into quintiles.[5] Table 3.5 shows the proportion of families living in each of the five SIMD quintiles.

At age 3, 23% of BC1 and 24% of BC2 children lived in the most deprived areas of Scotland, while 19% and 18%, respectively, lived in the least deprived areas. There were no statistically significant differences between the cohorts in this respect.

5 For further information about SIMD, see Appendix A.

Table 2.5 Area deprivation of home address (quintiles), by cohort

	BC1 %	BC2 %
1 Most deprived	24	23
2	18	20
3	20	20
4	19	19
5 Least deprived	19	18
Unweighted bases	*4193*	*4985*

Differences by cohort are not statistically significant.

2.4 Maternal age

Table 2.6 shows the age of the child's mother at the time of birth of the cohort child. In both cohorts, the majority of mothers were in their twenties or their thirties. However, there were some differences between the cohorts. Firstly, while the proportion of teenage mothers was small in both cohorts, it was slightly higher in BC1 (8%) than in BC2 (6%). This difference is statistically significant and is consistent with data from ISD which shows a small drop in the number of babies born to teenage mothers between 2004 and 2010 (Macpherson, 2013; ISD, 2012). Secondly, mothers in BC2 were more likely than those in BC1 to be in their twenties (41% for BC1, 46% for BC2), and less likely to be in their thirties (48% for BC1, 44% for BC2) when the cohort child was born. This shift reflects a wider trend over the past decade that has seen a slight reduction in the age of first-time mothers following a long-term trend observed since the 1970s of first-time mothers getting older (Bradshaw et al., 2013; ISD, 2011).

Table 2.6 Mother's age at child's birth, by cohort

	BC1 %	BC2 %
Under 20*	8	6
20 to 29*	41	46
30 to 39*	48	44
40 or older	3	4
Unweighted bases	*4170*	*4996*

*Differences by cohort on items marked * are statistically significant at $p < .05$ or less. All other differences are not statistically significant.*

2.5 Parental level of education

Table 2.7 shows levels of parental education for both cohorts. In couple households the figures reflect the highest level of education obtained by either the respondent or his/her partner, whichever is higher. For single parent families, figures reflect the education level of the respondent.[6]

Children in BC2 (42%) were more likely than children in BC1 (34%) to be living in a household with at least one adult educated to degree level or above. This difference is in line with a wider trend within Scotland which has seen the proportion of adults (aged 16-64 years old) educated to degree level or above increase from 26% to 31% between 2004 and 2010 (Nomis, 2015).

A small proportion of children (6% in BC1; 5% in BC2) lived in households where no adult had any qualification.

Table 2.7 Parental level of education in household, by cohort

	BC1 %	BC2 %
No qualifications*	6	5
Lower Standard Grades or VQs or Other	6	6
Upper level SGs or Intermediate VQs*	21	17
Higher grades and upper level VQs	32	30
Degree level academic and vocational qualifications*	34	42
Unweighted bases	*4186*	*4841*

*Differences by cohort on items marked * are statistically significant at $p < .05$ or less. All other differences are not statistically significant.*

2.6 Family type

Table 2.8 shows that at age 3 the vast majority of children lived in couple households (81% for BC1, 79% for BC2). For both BC1 and BC2 approximately one in five children lived in a single parent household.[7] There were no statistically significant differences in family type between the cohorts.

6 The respondent was asked to provide information on the nature and level of any school and post-school qualifications they and their partner, where applicable, had obtained. Qualifications are grouped according to their equivalent position on the Scottish Credit and Qualifications Framework which ranges from Access 1 to Doctorate. These are further banded to create the following categories: Degree-level academic or vocational qualifications, Higher Grades or equivalent vocational qualification (eg. SVQ 3), Upper-level Standard Grades (grades 1 to 4) or equivalent vocational qualification (eg. SVQ 1 or 2), Lower-level Standard grades (grades 5 to 7) or equivalent vocational qualifications (eg. Access 1 or 2, National Certificates). The highest qualification is defined for each parent and a household level variable can also be calculated. In couple families this corresponds to the highest classification amongst the respondent and his/her partner (Bradshaw et al., 2013).

7 Living in a couple household does not necessarily mean that the child lived with both biological parents.

Table 2.8 Family type, by cohort

	BC1 %	BC2 %
Respondent not living with spouse/partner (Single parent family)	19	21
Respondent living with spouse/partner (Couple family)	81	79
Unweighted bases	*4193*	*5019*

Differences by cohort not statistically significant.

chapter 3

CHILD HEALTH

This section compares the health of children in Scotland who were aged 3 in 2013 and 2007/08. This section presents data on children's general health, prevalence of longstanding illnesses and disabilities and the number of accidents children have had.

We know from previous analyses of GUS data that there is a correlation between the parent's assessment of their child's health and household income, area deprivation and parental education – children living in more advantaged circumstances have better general health (see Bromley and Cunningham-Burley, 2010). This chapter explores whether this relationship is also apparent for BC2 children at age 3, and whether there have been any changes in the nature of this relationship since BC1 children were the same age.

3.1 Child's general health

Parents were asked to rate their child's health in general, with response options ranging from 'very good' to 'very bad'. As Table 4.1 shows, for both cohorts the majority (70% in BC1, 69% in BC2) of parents rated their child's general health as very good. Conversely, only 1% or less, rated their child's health as bad or very bad. There were no statistically significant differences between the cohorts on this measure.

Table 3.1 Child's general health by cohort

	BC1 %	BC2 %
Very good	70	69
Good	24	26
Fair	5	5
Bad or very bad	0	1
Unweighted bases	*4193*	*5019*

Differences by cohort are not significant.

Table 3.2 shows parent assessed child general health by household income for the two cohorts. For both cohorts child general health varied by income and this relationship was statistically significant. Children in the highest income households were more likely to be assessed as having very good health (77% in BC1, 74% in BC2), compared with children in the lowest income households (62% in BC1, 65% in BC2).

The larger differences in assessed general health between those in the highest and lowest income quintiles in BC1, compared with BC2, might suggest that the relationship between household income and child general health was stronger in BC1 compared with BC2. However, this relationship was further investigated[8] and regression analysis showed that there were no statistically significant changes in the nature of the relationship between

8 Logistic regression analysis was carried out. For more information see Appendix C.

assessed general health and income between the cohorts. Looking at the table, whilst the difference between the proportion of children reported as having very good health in the lowest and highest income groups decreased between the cohorts, the likelihood of having good health nevertheless remains closely linked to level of household income. Furthermore, the apparent reduction in the proportion of children with very good health in the highest two income groups is unexpected. As will be shown below, the pattern of improving health amongst the most disadvantaged group and declining health amongst the most advantaged is not repeated consistently across the other measures of socio-economic circumstances nor in other health measures. As such, it does not appear to suggest a trend towards less health inequality between children in the most and least advantaged groups.

Table 3.2 Child's general health, by equivalised household income (quintiles) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1					
Very good	62	68	74	77	77
Good	30	25	22	20	19
Fair	7	7	4	3	3
Bad or very bad	1	0	1	0	0
BC2					
Very good	65	69	70	71	74
Good	29	26	23	24	22
Fair	5	4	6	5	4
Bad or very bad	1	1	0	0	1
Unweighted bases – BC1	*783*	*803*	*761*	*858*	*721*
Unweighted bases – BC2	*981*	*778*	*814*	*776*	*1021*

*Tested on very good health: differences by income - $p < .001$; differences by cohort – NS; cohort*income – $p < .05$.*

Table 3.3 shows a statistically significant association between parent reported child general health and parental level of education. Among children with the most educated parents around three quarters (76% in BC1 and 72% in BC2) were assessed as having very good health. By comparison, among those whose parents had no qualifications, less than two thirds (66% in BC1 and 61% in BC2) were assessed as such. The relationship between parental level of education and child general health did not differ between the two cohorts.

Table 3.3 Child's general health, by parental level of education and cohort

	No qualifications	Lower Standard Grades or VQs or Other	Upper level SGs or Intermediate VQs	Higher grades and upper level VQs	Degree level academic and vocational qualifications
	%	%	%	%	%
BC1					
Very good	66	63	64	71	76
Good	26	33	28	24	20
Fair	7	5	7	5	4
Bad or very bad	1	-	1	0	0
BC2					
Very good	61	64	65	68	72
Good	31	30	29	26	23
Fair	7	4	5	5	5
Bad or very bad	1	3	1	1	1
Unweighted bases – BC1	*200*	*206*	*804*	*1379*	*1597*
Unweighted bases – BC2	*164*	*217*	*714*	*1428*	*2318*

*Tested on very good health: differences by parental education – p < .001; differences by cohort – p < .05; cohort*parental education – NS.*

For both cohorts, child general health was also associated with maternal age, and this relationship was statistically significant. Table 3.4 shows that BC1 children born to mothers over 40 (74%) were more likely to be assessed as having very good health than those born to the youngest mothers (63%). In BC2, the relationship between maternal age and child general health showed a different pattern, with children whose mothers were aged 20 to 29 being less likely to be reported as having very good health than children from other mothers (66% compared with 71% of mothers in all the other age groups). Overall, however, changes between the two cohorts were not statistically significant, and the relationship between maternal age and parent assessed child general health was similar in both cohorts. This may be related, in part, to the small numbers of parents in the youngest and oldest age groups.

When specifically comparing children born to teenage mothers with children born to mothers aged 20 and over, there is a statistically significant difference in the relationship between maternal age and the proportion of parents assessing their child as having very good health across the cohorts. In BC1, children born to teenage mothers were less likely than children born to mothers aged 20 and over to be assessed as having very good health. For BC2 children the relationship is slightly different: the proportion of children born to teenage mothers with very good health was 71% which was the same proportion amongst children with older mothers (aged 30 years and older). It should also be noted, however, that when looking simply at good health (i.e. 'good' and 'very good' health combined), there was no difference in the relationship between maternal age and child health between the cohorts.

Table 3.4 Child's general health, by maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1				
Very good	63	67	74	74
Good	31	25	22	24
Fair	6	7	4	3
Bad or very bad	0	1	0	0
BC2				
Very good	71	66	71	71
Good	25	27	24	24
Fair	3	6	5	5
Bad or very bad	1	1	1	0
Unweighted bases – BC1	*221*	*1565*	*2229*	*155*
Unweighted bases – BC2	*217*	*1979*	*2573*	*227*

*Tested on very good health: differences by maternal age – p < .001; differences by cohort – NS; cohort*maternal age – NS.*

Table 3.5 shows the variation in parental assessed child general health by area deprivation for both cohorts. In both BC1 and BC2 children living in the least deprived areas were more likely to be assessed as having very good health (76% in BC1, 73% in BC2) than those living in the most deprived areas (64% in BC1, 63% in BC2). This relationship was statistically significant for both cohorts. There were no statistically significant changes in the nature of this relationship between the cohorts.

Table 3.5 Child's general health, by area deprivation (quintiles) and cohort

	1 Most deprived %	2 %	3 %	4 %	5 Least deprived %
BC1					
Very good	64	68	71	74	76
Good	28	26	24	21	20
Fair	7	6	5	5	3
Bad or very bad	1	0	1	0	-
BC2					
Very good	63	65	70	73	73
Good	31	26	24	22	23
Fair	5	7	5	4	3
Bad or very bad	1	1	1	0	1
Unweighted bases – BC1	*833*	*698*	*873*	*884*	*905*
Unweighted bases – BC2	*943*	*936*	*1031*	*1064*	*1011*

*Tested on very good health: differences by area deprivation – $p < 0.001$; differences by cohort – NS; cohort*area deprivation – NS.*

3.2 Longstanding illnesses and disabilities

At the age 3 interview parents were asked whether their child had any long-term conditions that affected their health. A long-term condition was described as any illness or disability that troubled the child long-term and was expected to last for more than a year. No examples of conditions were provided, but if the carer answered 'yes', then further details were collected.

Table 3.6 shows the proportion of 3-year-old children who had a longstanding illness or disability for both cohorts. The table shows that a slightly higher proportion of children in BC2 (17%) had a long-term health condition compared with children in BC1 (14%). This difference was statistically significant. It is also worth noting that this difference between the cohorts was not apparent when comparisons were made at age 10 months.[9] The majority of children who had a longstanding illness or disability had only one condition – just 2% of all children in BC1 and 3% of children in BC2 had two or more longstanding illnesses or disabilities (Table 3.7).

9 When the children were 10 months old, 13% of BC1 children and 12% of BC2 children had a long-term health condition.

Table 3.6 Child's longstanding illnesses or disabilities by cohort

	BC1 %	BC2 %
No	86	83
Yes	14	17
Unweighted bases	*4193*	*5019*

Tested on 'Yes': difference between cohorts – p < .01.

Table 3.7 Child's number of longstanding illnesses or disabilities by cohort

	BC1 %	BC2 %
None*	86	83
One*	12	14
Two or more*	2	3
Unweighted bases	*4193*	*5019*

*Differences by cohort on items marked * are statistically significant at p < .05 or less.*

The proportion of children who had any longstanding illnesses or disabilities by household income is shown in Table 3.8. There was a statistically significant relationship between household income and the proportion of children who had any long-term health conditions in both cohorts: children living in high-income households were slightly less likely to have any longstanding illnesses or disabilities than those living in households with lower incomes. For example, 14% of BC2 children living in the highest income households had a long-term health condition while this was the case for 19% of those living in the lowest income households. The increase in longstanding health conditions in BC2 was evident across all income groups. However, there was no statistically significant difference in the relationship between household income and prevalence of longstanding illnesses or disabilities between the two cohorts.

Table 3.8 Child's longstanding illnesses or disabilities, by equivalised household income (quintiles) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1					
No	83	86	85	87	87
Yes	17	14	15	13	13
BC2					
No	81	82	82	85	86
Yes	19	18	18	15	14
Unweighted bases – BC1	*783*	*803*	*761*	*858*	*721*
Unweighted bases – BC2	*981*	*778*	*814*	*776*	*1021*

*Tested on 'yes': differences by income – p < .01; differences by cohort – p < .01; cohort*income – NS.*

Table 3.9 shows the proportion of children who have long-term health conditions by parental level of education. The table suggests that, for BC1, children whose parents had no qualifications were more likely to have a long-term condition than those whose parents had degree level qualifications. However, this apparent relationship between having a long-term condition and parental level of education was not statistically significant. For BC2, there was no clear pattern of association between the prevalence of long-term health conditions and parental level of education. This is in line with previous analysis of GUS data collected when the BC2 children were aged 10 months, which found that prevalence of longstanding illnesses or disabilities did not vary significantly by parental level of education (Bradshaw et al, 2013). There were no statistically significant changes in the nature of the relationship between long-term conditions and parental level of education between BC1 and BC2.

Table 3.9 Child's longstanding illnesses or disabilities by parental level of education and cohort

	No qualifications %	Lower Standard Grades or VQs or Other %	Upper level SGs or Intermediate VQs %	Higher grades and upper level VQs %	Degree level academic and vocational qualifications %
BC1					
No	81	84	84	86	87
Yes	19	16	16	14	13
BC2					
No	83	83	81	84	83
Yes	17	17	19	16	17
Unweighted bases – BC1	*200*	*206*	*804*	*1379*	*1597*
Unweighted bases – BC2	*164*	*217*	*714*	*1428*	*2318*

*Tested on 'yes': differences by parental education – NS; differences by cohort – p < .001; cohort*parental education – NS.*

There was no statistically significant correlation between maternal age and prevalence of longstanding illnesses or disabilities for either of the cohorts (Table 3.10).[10] With the exception of children whose mothers were aged 20 to 29, children in all groups showed an increase in longstanding illness between cohorts.

Table 3.10 Child's longstanding illnesses or disabilities, by maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1				
No	87	83	87	90
Yes	13	17	13	10
BC2				
No	84	83	83	82
Yes	16	17	17	18
Unweighted bases – BC1	*221*	*1565*	*2229*	*155*
Unweighted bases – BC2	*217*	*1979*	*2573*	*227*

*Tested on 'yes': differences by maternal age – NS; differences by cohort – p < .01; cohort*maternal age – NS.*

10 At age 10 months, prevalence of longstanding illnesses and disabilities was higher among BC2 children born to mothers aged 30 and over (13%) than those aged under 30 (10%) (Bradshaw et al, 2013).

Table 3.11 shows the proportion of children having at least one long-term health condition by area deprivation. Analysis of GUS data collected when BC2 were aged 10 months did not find any relationship between area deprivation and prevalence of longstanding illnesses or disabilities (Bradshaw et al, 2013). By age 3, however, there was a relationship: children living in the most deprived areas were more likely to have a longstanding illness or disability than those living in the least deprived areas. This relationship was statistically significant for both cohorts. In BC1, for example, 18% of children living in areas in the most deprived quintile had a longstanding illness compared with 13% children living in areas in the least deprived quintile.

Comparing BC2 with BC1 at age 3, we see that there was a slight increase in the proportion of children in almost all SIMD quintiles (except the most deprived) who were reported as having a longstanding illness. There was no statistically significant change in the nature of the relationship between long-standing illness and area deprivation across the two cohorts.

Table 3.11 Child's longstanding illnesses or disabilities by area deprivation (quintiles) and cohort

	1 Most deprived %	2 %	3 %	4 %	5 Least deprived %
BC1					
No	82	85	87	87	87
Yes	18	15	13	13	13
BC2					
No	83	81	84	84	84
Yes	17	19	16	16	16
Unweighted bases – BC1	*833*	*698*	*873*	*884*	*905*
Unweighted bases – BC2	*943*	*936*	*1031*	*1064*	*1011*

*Tested on 'yes': differences by area deprivation – p < .01; differences by cohort – p < .01; cohort*area deprivation – NS.*

3.3 Accidents

Parents were asked about the number of accidents the cohort child had had since the time of the last interview. It is important to note that, due to differences in the frequency of sweeps of data collection, the reference period for the two cohorts is different: BC1 parents were asked about the number of accidents in the past year whilst BC2 parents were asked about the number of accidents in the previous two years. This means that the figures are not directly comparable.[11] It is possible, however, to look at and compare trends in the relationship between number of accidents and the various measures of social disadvantage for each cohort.

11 Prior to the age 3 interview, BC1 families were last interviewed when the child was aged 2, while BC2 families were last interviewed when the child was aged 10 months.

Table 3.12 gives an overview of the total number of accidents that children were reported to have had. As may be expected given the longer reference period, children in BC2 were more likely to have had an accident.

Table 3.12 Number of accidents in last year (BC1) or last two years (BC2)

	BC1 %	BC2 %
None	81	68
One	17	25
Two or more	2	7
Unweighted bases	*4193*	*5019*

Differences by cohort are not comparable due to different reference periods.

For both cohorts, the number of accidents a child had within the reference period (whether one or two years) was correlated with the level of household income: children living in the highest income quintiles were more likely than children living in the lower income quintiles to have had no accidents (Table 3.13). For example, 71% of BC2 children in the highest income quintile had not had any accidents in the past two years compared with 67% for children in the lowest income quintile. There was no statistically significant difference in the relationship between income and number of accidents between the two cohorts.

For both cohorts, the number of accidents a child had within the reference period (whether one or two years) was correlated with the level of household income: children living in the highest income quintiles were more likely than children living in the lower income quintiles to have had no accidents (Table 3.13). For example, 71% of BC2 children in the highest income quintile had not had any accidents in the past two years compared with 67% for children in the lowest income quintile. There was no statistically significant difference in the relationship between income and number of accidents between the two cohorts.

Table 3.13 Number of accidents in last year (BC1) or two years (BC2), by equivalised household income (quintiles) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1					
None	79	81	80	84	83
One	18	17	17	14	15
Two or more	3	2	3	2	2
BC2					
None	67	68	67	68	71
One	25	25	25	25	24
Two or more	8	7	8	7	5
Unweighted bases – BC1	*783*	*803*	*761*	*858*	*721*
Unweighted bases – BC2	*981*	*778*	*814*	*776*	*1021*

*Tested on 'none': differences by income – p < .05; cohort*income – NS. Note that due to differences in the measure used for BC1 and BC2 a direct comparison by cohort of values for each sub-group is not valid. As such the p-value has not been reported.*

Table 3.14 shows the number of accidents by parental level of education for each cohort. The nature of the relationship between parental level of education and number of accidents differed between the cohorts. For BC1 the figures suggest that children with highly educated parents were more likely to have had no accidents in the reference period than children whose parents had lower level or no qualifications. However, further analysis of the BC1 data showed that this relationship was not statistically significant.[12] For BC2, on the other hand, the figures suggest that children whose parents were educated to at least degree level were more likely to have had accidents than children whose parents had lower level or no qualifications, and further analysis shows that this was a statistically significant relationship.

12 Logistic regression analysis was undertaken to test the relationship between parental education and number of accidents. Results are given in Appendix C.

Table 3.14 Number of accidents in last year (BC1) or two years (BC2), by parental level of education and cohort

	No qualifications %	Lower Standard Grades or VQs or Other %	Upper level SGs or Intermediate VQs %	Higher grades and upper level VQs %	Degree level academic and vocational qualifications %
BC1					
None	78	79	81	79	83
One	20	18	17	18	15
Two or more	2	3	3	3	2
BC2					
None	74	77	66	65	69
One	20	15	25	26	25
Two or more	6	8	9	9	6
Unweighted bases – BC1	*200*	*206*	*804*	*1379*	*1597*
Unweighted bases – BC2	*164*	*217*	*714*	*1428*	*2318*

*Tested on 'none': differences by parental education – $p < .01$; cohort*parental education – $p < .05$. Note that due to differences in the measure used for BC1 and BC2 a direct comparison by cohort of values for each sub-group is not valid. As such the p-value has not been reported.*

The number of accidents was also correlated with maternal age at the child's birth (Table 3.15). Children born to younger mothers were more likely to have had two or more accidents in the reference period than those born to older mothers. For example, 10% of BC2 children born to teenage mothers had had two or more accidents while this was the case for only 5% of those born to mothers over 40. There was no statistically significant difference in the relationship between maternal age and number of accidents between the two cohorts.

Table 3.15 Number of accidents in last year (BC1) or two years (BC2), by maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1				
None	79	79	83	79
One	17	19	15	18
Two or more	4	2	2	3
BC2				
None	66	67	69	71
One	24	25	25	24
Two or more	10	8	6	5
Unweighted bases – BC1	*221*	*1565*	*2229*	*155*
Unweighted bases – BC2	*217*	*1979*	*2573*	*227*

*Tested on 'none': differences by maternal age – p < .05; cohort*maternal age – NS. Note that due to differences in the measure used for BC1 and BC2 a direct comparison by cohort of values for each sub-group is not valid. As such the p-value has not been reported.*

Area deprivation was not correlated with number of accidents for either of the cohorts (Table 3.16).

Table 3.16 Number of accidents in last year (BC1) or two years (BC2), by area deprivation (quintiles) and cohort

	1 Most deprived %	2 %	3 %	4 %	5 Least deprived %
BC1					
None	78	81	82	81	84
One	19	17	15	18	15
Two or more	3	2	3	2	2
BC2					
None	68	67	69	68	68
One	24	25	25	25	25
Two or more	8	8	6	7	7
Unweighted bases – BC1	*833*	*698*	*873*	*884*	*905*
Unweighted bases – BC2	*943*	*936*	*1031*	*1064*	*1011*

*Tested on 'none': differences by area deprivation – NS; cohort*area deprivation – NS. Note that due to differences in the measure used for BC1 and BC2 a direct comparison by cohort of values for each sub-group is not valid. As such the p-value has not been reported.*

chapter 4

CHILD DEVELOPMENT

This section focuses on two areas of child development: physical development milestones and cognitive ability.[13] These measures are important indicators of developmental progress. Previous research on GUS has demonstrated stark differences in these measures according to a child's socio-economic background from an early age. Gender is also known to be strongly associated with differences in early child development; as such this has been included as an additional comparison for this section.

4.1 Physical development milestones

Parents were asked whether or not the cohort child was able to achieve the following developmental tasks by the time of the interview (shortly before the child's third birthday):

- Walk up steps like an adult (alone or with help)
- Balance on one foot
- Hop on one foot
- Undo big buttons
- Draw a circle
- Copy a square
- Drink from a cup
- Brush teeth without help
- Put on a t-shirt without help
- Get dressed without any help.

In both cohorts, almost all children were able to drink from a cup (98%) and walk up steps like an adult either on their own (89%) or with help (9%). A large proportion were also able to balance on one foot (86%). Most children were also able to undertake the remaining tasks. The exceptions were copying a square, drawing a circle, putting on a t-shirt without any help and getting dressed without any help (38%), where fewer than half of children were reported as being able to complete these tasks (Table 4.1).

13 GUS also routinely collects information on children's social, emotional and behavioural development using the Strengths and Difficulties Questionnaire. Whilst this data is available for BC2 at age three, there is no corresponding data from BC1 until age 4.

In five out of the ten milestones included, there were no statistically significant differences in the proportion of children in each cohort who were able to complete the task. The remaining five (indicated in Table 4.1) did show some differences between cohorts which were statistically significant. On one of these – brushing teeth without help – the size of the difference is very small. However, the remaining measures show a greater - though still small - change. The pattern of change is not consistent in direction nor in the developmental area which the task measures. On two milestones – drawing a circle and getting dressed without help - the proportion of children able to complete the task is lower in BC2 than in BC1 by around 4-5 percentage points. For the other two milestones – copying a square and putting on a t-shirt - the opposite is true with the proportion in BC2 being higher than BC1 by around 5-6 percentage points.

Table 4.1 Percentage of children able to complete selected developmental tasks

	BC1 %	BC2 %
Walk up steps like an adult (alone or with help)	98	98
Balance on one foot	87	86
Hop on one foot	75	75
Undo big buttons	78	77
Draw a circle*	24	19
Copy a square*	39	44
Drink from a cup	99	98
Brush teeth without help*	96	95
Put on a t-shirt without help*	27	33
Get dressed without any help*	42	38
Unweighted bases	*4094*	*4931*

*Differences by cohort on items marked * are statistically significant at p < .001. All other differences are not statistically significant.*

For the purposes of comparison, a summary variable was created which counted the number of tasks the child was unable to accomplish. 14% of children could complete all tasks, 20% were unable to complete one, 22% were unable to complete two and 44% were unable to complete three or more (Table 4.2). There was no statistically significant difference between cohorts on this measure.

Table 4.2 Number of developmental tasks not achieved, by cohort

	BC1 %	BC2 %
None	14	14
One	22	20
Two	22	22
Three or more	42	44
Unweighted bases	*4032*	*4887*

Differences by cohort are not statistically significant.

Table 4.3 shows that girls were more likely than boys to be able to achieve all tasks – 19% could do so compared with 9% of boys.

In contrast, boys were more likely than girls to be unable to complete three or more tasks – 53% compared with 31% (Table 4.3). Differences by gender are statistically significant - in both cohorts, boys were more likely than girls to be unable to complete three or more tasks.

Table 4.3 Number of developmental tasks not achieved, by gender and cohort

	Boys %	Girls %
BC1		
None	9	19
One	17	27
Two	21	23
Three or more	53	31
BC2		
None	9	19
One	16	23
Two	21	24
Three or more	54	33
Unweighted bases – BC1	*2064*	*1968*
Unweighted bases – BC2	*2471*	*2416*

*Tested on category one: differences by gender - p < .001; differences by cohort p < .05; cohort*gender p = NS.*

The proportion of children who could complete all tasks did not vary much across the sub-groups considered. Most variation occurred in the proportion of children who were unable to complete three or more of the tasks. In terms of household income, in both cohorts the proportion of children unable to complete three or more tasks increased as household income increased. Differences by income were statistically significant. The proportion of children in each income group unable to complete three or more tasks was very similar in both cohorts. Any differences shown between cohorts were not statistically significant.

Table 4.4 Number of developmental tasks not achieved, by equivalised household income (quintiles) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1					
None	15	14	13	13	12
One	25	21	24	19	19
Two	23	23	21	22	22
Three or more	36	42	42	46	46
BC2					
None	14	17	12	13	12
One	20	20	20	19	20
Two	23	22	24	23	22
Three or more	43	40	44	45	47
Unweighted bases – BC1	*754*	*772*	*731*	*831*	*694*
Unweighted bases – BC2	*954*	*763*	*796*	*762*	*1000*

*Tested on category 'three or more': differences by income - p < .001; differences by cohort p = NS; cohort*income p = NS.*

The relationship between parental level of education and development was different in each cohort (Table 4.5). In BC1, children whose parents were degree educated were more likely than those with any other qualifications to be reported as unable to complete three or more tasks. These differences are statistically significant. In BC2, differences by parental level of education were not significant. There were some small differences between comparable sub-groups in each cohort, which were statistically significant. However, there is no consistent pattern of change across all sub-groups nor an obvious trend by level of education.

Table 4.5 Number of developmental tasks not achieved, by parental level of education and cohort

	No qualifications %	Lower Standard Grades or VQs or Other %	Upper level SGs or Intermediate VQs %	Higher grades and upper level VQs %	Degree level academic and vocational qualifications %
BC1					
None	14	12	15	16	11
One	31	20	24	22	20
Two	17	26	21	24	21
Three or more	39	41	41	39	47
BC2					
None	18	15	16	15	13
One	12	20	19	21	19
Two	26	23	25	21	22
Three or more	44	43	40	43	47
Unweighted bases – BC1	*189*	*197*	*770*	*1342*	*1527*
Unweighted bases – BC2	*152*	*203*	*701*	*1403*	*2262*

*Tested on category 'three or more': differences by education – BC1 $p < .001$, BC2 p = NS; differences by cohort $p < .001$; cohort*income $p < .01$.*

Children with older mothers were more likely to be unable to complete three or more tasks than those with younger mothers. 52% of children whose mother was aged 40 or older were unable to complete three or more tasks compared with 41% of those whose mother was under 20 at the birth and 42% of those whose mother was in her twenties (Table 4.6). Differences by maternal age were statistically significant. There were no statistically significant differences between cohorts.

Table 4.6 Number of developmental tasks not achieved by maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1				
None	14	14	13	13
One	27	23	20	22
Two	21	23	22	16
Three or more	38	40	44	49
BC2				
None	17	15	13	14
One	20	20	19	16
Two	22	23	22	19
Three or more	41	42	46	52
Unweighted bases – BC1	*220*	*1516*	*2133*	*143*
Unweighted bases – BC2	*213*	*1927*	*2506*	*219*

*Tested on category 'three or more': differences by maternal age – p < .001; differences by cohort p = NS; cohort*income p = NS.*

The proportion of children unable to complete three or more tasks increased as area deprivation decreased (Table 4.7). 41% of children living in areas in the most deprived quintile could not complete three or more tasks compared with 49% of those living in areas in the least deprived quintile. Differences by area deprivation were statistically significant. This pattern is evident in both BC1 and BC2. However, in all deprivation groups other than the fourth quintile, there was an increase of around three percentage points between BC1 and BC2 in the proportion of children unable to complete three or more tasks. Nevertheless, as noted earlier, there was no statistically significant overall rise in the proportion of children who were not able to complete three or more tasks.

Table 4.7 Number of developmental tasks not achieved, by area deprivation (quintiles) and cohort

	1 Most deprived %	2 %	3 %	4 %	5 Least deprived %
BC1					
None	14	15	16	11	12
One	25	21	22	20	20
Two	23	22	20	23	23
Three or more	37	42	41	46	46
BC2					
None	15	16	14	11	14
One	21	19	20	21	16
Two	23	21	22	24	21
Three or more	41	44	44	44	49
Unweighted bases – BC1	*813*	*672*	*843*	*834*	*870*
Unweighted bases – BC2	*920*	*905*	*1001*	*1040*	*989*

*Tested on category 'three or more': differences by area deprivation – $p < .05$; differences by cohort $p < .05$; cohort*area deprivation p = NS.*

Analysis of data on other health and development indicators tends to show poorer health and development amongst children in more disadvantaged circumstances. In this instance, and consistently for both cohorts, the relationship is the opposite; children in more disadvantaged circumstances are reported to have more advanced development than those in more advantaged circumstances. This may be a result of the nature of the questions themselves and how parents choose to answer them or the particular tasks which they cover. To explore this further, additional analysis was undertaken to examine the extent of any differences by household income on each of the individual tasks.

The results[14] indicated that two tasks were the main drivers of the differences in the summary variable: whether the child could put on a t-shirt alone and whether the child could get dressed alone. On each of these items, and in each cohort, as income increased the likelihood of a child being able to complete the task decreased (Table 4.8). Given the nature of these items – each involving the child getting dressed – differences here may be more a reflection of parenting practices and/or the wider context of the household rather than down to differences in the child's development. For example, parents in higher income households are more likely than those in lower income households to be employed and to work longer hours. In these circumstances, parents have less time to allow a child to dress themselves and may help them more often.

14 Full results are available on request.

Table 4.8 % of children who could achieve selected tasks, by equivalised household income (quintiles) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
Put on a t-shirt without help*					
BC1	78	74	72	69	67
BC2	69	70	63	64	64
Get dressed without any help*					
BC1	51	43	40	37	35
BC2	42	43	33	32	34
Unweighted bases – BC1	*773*	*798*	*755*	*857*	*718*
Unweighted bases – BC2	*968*	*774*	*809*	*773*	*1019*

*Put on t-shirt - tested on category 1 'yes': differences by income - p < .001; differences by cohort p < .001; cohort*income p = NS.*

*Get dressed - tested on category 1 'yes': differences by income - p < .001; differences by cohort p = NS; cohort*income p = NS.*

4.2 Cognitive ability

Cognitive ability was measured in both cohorts via two assessments: the naming vocabulary and picture similarities subtests of the British Ability Scales (BAS). These two assessments measure, respectively, language development and problem solving skills. The assessments are individually administered. Numerous tests of ability and intelligence exist but the BAS is particularly suitable for administration in a social survey like GUS. Children in BC1 were administered tests from the BAS second edition (BAS-II). This version was updated between cohorts. As such, children in BC2 were administered tests from the third edition (BAS-III). Both editions are virtually identical in terms of administration protocols. However, the particular items within each test vary slightly. This has implications for producing comparative scores, which are discussed below.

The naming vocabulary assessment measures a child's language development. The test requires the child to name a series of pictures of everyday items and assesses the expressive language ability of children. The picture similarities assessment measures a child's problem solving ability (or non-verbal reasoning). In the assessment children are shown a row of four pictures on a page. They are asked to place a free-standing card with a fifth picture underneath the picture with which the card shares a similar element or concept. There are a little over 30 items in total in both assessments. However, to reduce burden and to avoid children being upset by the experience of repeatedly failing items within the scale the number of items administered to each child is dependent on their performance. For example, one of the criteria for terminating the naming vocabulary assessment is if five successive items are answered incorrectly. Children were not provided with any feedback on their individual performance.

For analysis purposes, the child's raw score (that is, the count of the number of items they answered correctly) is converted to an ability score. The ability score reflects the range and, more importantly, the difficulty of the specific items a child is asked. Look-up tables for the

transformation from raw scores to ability scores are provided in the BAS testing materials. The ability scores are then adjusted for the child's age at the time of assessment using scores from the 'norming' sample which are also supplied with the assessment materials. Standardising the scores in this way avoids older children obtaining higher scores due to their more advanced stage of cognitive development and greater educational experience, rather than their ability. In practice, the vast majority of children in GUS were assessed within a month or two in age.[15] Nevertheless, the standardised test score takes account of how a child is performing on the sub-tests in relation to other children of the same age.

The standardised scores for each of the sub-tests have a mean of 50 and standard deviation of 10, and the scores are bounded between 20 and 80. A child whose standardised ability score is equal to the norming sample will have a score of 50, a child with a score of 40 has an ability score one standard deviation below the mean score of the norming sample, and a child with a score of 60 has an ability score that is one standard deviation above the norming sample.

Because of differences in the content of the BAS-II and BAS-III assessments, the BAS-II scores for BC1 need to be adjusted before they can be compared with the BAS-III scores for BC2. This was done using information supplied by the assessment authors. Note that, because of this adjustment, it is not possible to convert differences in average cognitive ability scores to developmental age in months, as has been done in a previous GUS report (Bradshaw, 2011).

The mean standardised scores on each assessment for each cohort are shown in Table 5.9. As the data show, children in BC2 had a slightly higher vocabulary score than children in BC1. This difference is statistically significant. There was no difference in problem solving ability. As noted above, whilst children in each cohort undertook different editions of the BAS assessments, a comparative score was derived through consultation with the assessment developers. As such, this increase is not considered to be a function of different editions of the assessments being used.

The increase in average language ability between the cohorts warrants some further investigation. As noted in chapter three, there are some key differences in the socio-economic characteristics of parents of 3-year-olds in Scotland – most notably, an increase in the proportion of parents qualified to degree-level - which may have impacted on average language levels. We know from previous GUS analysis that parental education is highly correlated with their child's language development. It is possible then that the improvements we see at age three have been driven by differences in the characteristics of parents.

The differences in early language ability between the cohorts are being considered in more detail in a separate report (Bradshaw et al, forthcoming). That report considers a range of other differences in circumstances and experiences between the cohorts which may have influenced language ability, such as the frequency of parent-child activities and the introduction of national interventions aimed at improving early development such as Play, Talk, Read. Analysis undertaken for that report showed that after differences in level of parental education between cohorts are controlled for, children in BC2 are still more likely than those in BC1 to have a higher vocabulary ability.

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15 At the time of the interview, in BC1 83% of children were aged 34 months and 16% were aged 35 months. The remaining 1% were aged 33 months. In BC2, 37% of children were aged 34 months, 56% were aged 35 months, 3% were aged 36 months, 2% were 37 months and the remaining 1% were between 38 and 41 months.

The analysis below, which explores the extent of change between cohorts amongst children in all socio-economic sub-groups, provides some further insight into the differences between cohorts. In the main, these show that differences in average ability between children of different demographic and socio-economic characteristics are broadly similar in both cohorts. Girls and those in more advantaged circumstances show higher average ability than boys and those in less advantaged circumstances, with only small changes in the difference between children in the most and least advantaged groups.

Table 4.9 Mean standardised cognitive ability scores, by cohort

	BC1	BC2
Naming vocabulary	47.6	50.0
Unweighted bases	3930	4625
Problem solving	46.2	46.0
Unweighted bases	*3946*	*4678*

Differences by cohort: naming vocabulary p < .001, problem solving p = NS.

In both cohorts, and for both assessments, girls scored higher on average than boys (see Table 4.10). Differences by gender are statistically significant on both assessments. Between cohorts, there was a statistically significant increase in the mean vocabulary score for both boys and girls. There were no statistically significant differences in problem solving ability for either sex.

Table 4.10 Mean standardised cognitive ability scores, by gender and cohort

	Boys	Girls
Naming vocabulary		
BC1	45.8	49.4
BC2	48.5	51.4
Unweighted bases – BC1	*1980*	*1950*
Unweighted bases – BC2	*2310*	*2315*
Problem solving		
BC1	45.2	47.3
BC2	44.8	47.2
Unweighted bases – BC1	*1993*	*1953*
Unweighted bases – BC2	*2345*	*2333*

*Naming vocabulary: differences by gender - p < .001; differences by cohort – p < .001; cohort*gender p = NS.*

*Problem solving: differences by gender - p < .001; differences by cohort – p = NS; cohort*gender p = NS.*

As has been found in previous analysis of GUS cognitive ability data (Bradshaw, 2011; Bromley, 2009) there was a relationship between cognitive ability and household income. As income increased ability scores also generally increased for each cohort and each assessment (Table 4.9). Differences by household income are statistically significant.

The increase in vocabulary score between BC1 and BC2 at age 3, occurred across all income sub-groups. As Table 4.11 and Figure 4-A show, in BC2, children in each income sub-group returned a higher average score than their peers in BC1. Furthermore, the level of

change was very similar in each group. In Figure 4-A, the level of change between cohorts is indicated by the distance between the two lines. As can be seen, the lines are almost parallel, reflecting that scores in each sub-group increased by a similar margin. Whilst change is slightly greater in the lowest income group than the highest – meaning that the difference in mean scores between the highest groups is a little smaller in BC2 than it was in BC1 (6.7 points compared with 7.8 points) - there was no particular pattern in the extent of the improvement by income level.

Table 4.11 Mean standardised cognitive ability scores, by equivalised household income (quintiles) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
Naming vocabulary					
BC1	43.2	46.6	48.4	49.9	51.0
BC2	46.7	49.0	50.8	53.2	53.3
Unweighted bases – BC1	*711*	*757*	*722*	*815*	*690*
Unweighted bases – BC2	*896*	*700*	*744*	*745*	*988*
Problem solving					
BC1	42.4	46.0	46.7	48.2	49.1
BC2	44.4	45.9	47.0	46.8	47.8
Unweighted bases – BC1	*717*	*761*	*722*	*819*	*694*
Unweighted bases – BC2	*908*	*711*	*754*	*748*	*992*

*Naming vocabulary: differences by income - $p < .001$; differences by cohort – $p < .001$; cohort*income p = NS.*
*Problem solving: differences by income - $p < .001$; differences by cohort – p = NS; cohort*income $p < .001$*

Figure 4 A Mean standardised vocabulary scores, by equivalised household income (quintiles) and cohort

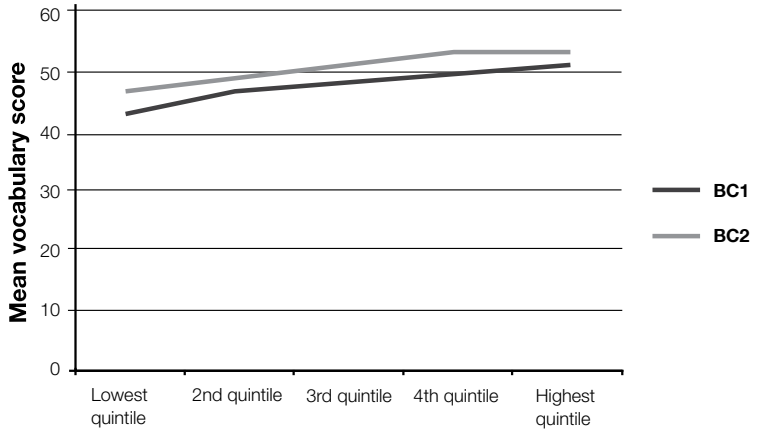
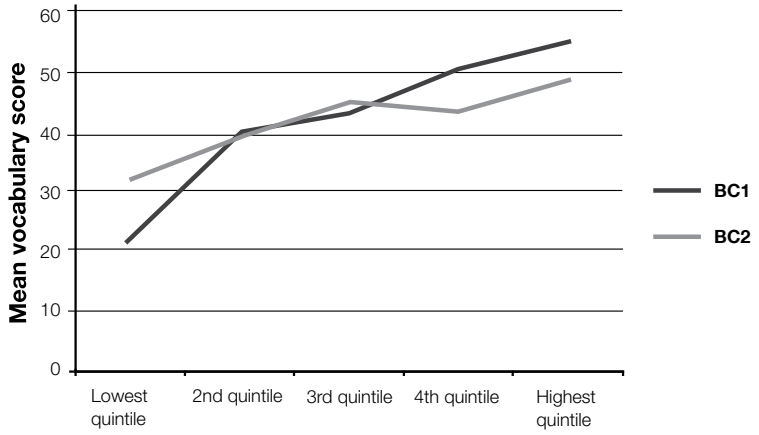


Figure 4 B Mean standardised problem solving scores, by equivalised household income (quintiles) and cohort



The pattern of change in problem solving scores amongst income sub-groups between cohorts is different to that seen with vocabulary scores. As noted earlier, at an overall level, there was no statistically significant difference in average problem solving scores between BC1 and BC2. Nevertheless, data in Table 4.11 and Figure 4-B indicate that income is less strongly related to problem solving ability in BC2 compared with BC1. Looking at Figure 4-B, the slope of the BC2 line is flatter than it is for BC1 reflecting the smaller difference between average scores in the lowest and highest income groups. Whilst this change has partly occurred because children in the lowest income group in BC2 showed an increase in their average problem solving scores, it also results from a decrease in average scores amongst children in the two highest income groups.

Children whose parents had higher educational qualifications tended to have higher average ability scores than those whose parents had lower qualifications (Table 4.12).This pattern is evident in both cohorts and for both assessments. Differences by parental level of education are statistically significant.

There was an increased vocabulary score between BC1 and BC2 among children from all parental educational backgrounds except those in the lower Standard Grade group. The level of increase is broadly similar in most sub-groups so that the difference between children with degree educated parents and those whose parents have no qualifications is similar for BC1 and BC2 with only a slight reduction (8.3 for BC1 compared with 8.1 for BC2).

Table 4.12 Mean standardised cognitive ability scores, by parental level of education and cohort

	No qualifications	Lower Standard Grades or VQs or Other	Upper level SGs or Intermediate VQs	Higher grades and upper level VQs	Degree level academic and vocational qualifications
	%	%	%	%	%
Naming vocabulary					
BC1	42.1	44.8	45.0	47.7	50.4
BC2	44.6	43.3	46.6	50.1	52.7
Unweighted bases – BC1	*174*	*179*	*745*	*1309*	*1516*
Unweighted bases – BC2	*124*	*168*	*652*	*1322*	*2204*
Problem solving					
BC1	40.7	44.2	43.8	47.0	48.3
BC2	42.3	43.4	44.0	46.4	47.3
Unweighted bases – BC1	*177*	*182*	*749*	*1308*	*1523*
Unweighted bases – BC2	*131*	*175*	*663*	*1333*	*2217*

*Naming vocabulary: differences by education - $p < .001$; differences by cohort – $p < .001$; cohort*education $p < .05$*

*Problem solving: differences by education - $p < .001$; differences by cohort – p = NS; cohort*education p = NS.*

On both assessments and for both cohorts, children with mothers aged 30 or older had higher average ability scores than children with younger mothers (Table 4.13). Differences by maternal age are statistically significant. Mean vocabulary scores increased for children in all maternal age groups between BC1 and BC2. This change was smallest for children whose mothers were aged 40 or older. As a result, the difference in ability score between children whose mothers were in the youngest and oldest age groups decreased a little between cohorts from 5.7 in BC1 to 4.9 in BC2. However, comparing the differences between children whose mothers are in the youngest age group and those whose mothers are aged between 30 and 39 shows almost no change between cohorts (5.1 in BC1 compared with 4.9 in BC2) and as a result maternal age remains similarly related to vocabulary in BC2 as it did in BC1.

Table 4.13 Mean standardised cognitive ability scores, by maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
Naming vocabulary				
BC1	44.1	46.1	49.2	49.8
BC2	46.4	49.1	51.3	50.4
Unweighted bases – BC1	*201*	*1456*	*2106*	*146*
Unweighted bases – BC2	*195*	*1777*	*2424*	*209*
Problem solving				
BC1	42.8	45.4	47.5	46.4
BC2	44.5	45.7	46.5	46.7
Unweighted bases – BC1	*202*	*1461*	*2115*	*147*
Unweighted bases – BC2	*197*	*1810*	*2440*	*211*

*Naming vocabulary: differences by age - $p < .001$; differences by cohort – $p < .001$; cohort*age p = NS.*

*Problem solving: differences by age - $p < .001$; differences by cohort – p = NS; cohort*age $p < .001$*

Table 4.14 shows that children living in less deprived areas had higher than average ability scores than those living in more deprived areas. This trend applies on both assessments and in both cohorts. Differences by area deprivation are statistically significant. In relation to naming vocabulary, mean scores for children living in all deprivation quintiles were higher in BC2 than in BC1. This change was statistically significant. However, the increase was slightly lower for children living in areas in the most deprived quintile compared with those living in all other areas. As a result, the difference in average scores for children living in the most and least deprived areas was slightly higher for BC2 than it was for BC1 (5.1 for BC1 compared with 6.2 for BC2). Nevertheless, area deprivation remains similarly related to vocabulary in BC2 as it did in BC1.

Table 4.14 Mean standardised cognitive ability scores, by area deprivation (quintiles) and cohort

	1 Most deprived	2	3	4	5 Least deprived
	%	%	%	%	%
Naming vocabulary					
BC1	45.1	45.3	48.5	49.0	50.2
BC2	46.4	48.3	51.1	52.2	52.6
Unweighted bases – BC1	*749*	*643*	*831*	*845*	*862*
Unweighted bases – BC2	*829*	*852*	*950*	*997*	*964*
Problem solving					
BC1	43.1	45.1	47.0	47.6	48.9
BC2	43.8	45.1	46.8	47.4	47.2
Unweighted bases – BC1	*751*	*648*	*830*	*850*	*867*
Unweighted bases – BC2	*841*	*861*	*967*	*1007*	*969*

*Naming vocabulary: differences by area deprivation - $p < .001$; differences by cohort – $p < .001$; cohort*area deprivation p = NS.*
*Problem solving: differences by area deprivation - $p < .001$; differences by cohort – p = NS; cohort*are deprivation p = NS.*

chapter 5

CHILD TELEVISION VIEWING

At the age 3 interview parents in BC1 and BC2 were asked a series of questions to measure the amount of television their child watched. These questions asked about the number of days the child watched television over the past week as well as how long the child spent watching television on a typical weekday and over a typical weekend. Parents were asked to include any time the child spent watching a film or DVD on a computer or laptop – as well as a television - but to exclude any other type of 'screen time' such as using a games console or computer to play games.

A range of international studies have shown that high exposure to television viewing in the early years has an adverse impact on cognitive development (see e.g. Zimmerman and Christakis, 2005; Christakis et al., 2009). Within the UK, analysis of the Avon Longitudinal Study of Parents and Children (ALSPAC) data found that greater usage of television in the home during a child's early years was associated with lower levels of language development at 24 months (even after controlling for socio-economic differences, including maternal occupation and parental educational status) (see Roulstone et al., 2011).

Data from longitudinal studies have also been used to explore the links between television viewing and childhood obesity. Earlier analysis from GUS has found that child's screen time between the ages of 3 and 6 was not associated with overweight and obesity at age 6 (Parkes et al., 2012). By comparison, analysis of ALSPAC data has found that a high number of hours of exposure to television at age 3 was associated with an increased risk of childhood obesity at age 7, again after controlling for socioeconomic differences (Reilly et al., 2005). The researchers concluded that this was due to television being associated both with a decrease in physical activity, and an increase in dietary intake. It is possible that the lack of a significant association between screen time and obesity in earlier GUS analysis is because screen time was a measurement not only of time spent watching television but also of playing video games and using a computer. A review of studies on the links between obesity and sedentary activities, suggested that time spent watching television and time spent playing video games should be analysed separately. The researchers found that while there was evidence that suggested parents should limit the time their younger children spent watching television, the evidence for any link between obesity and the time spent playing video games was not as strong. The researchers concluded that the link between time spent viewing television and obesity was likely to be related to a higher energy intake during times of inactivity rather than being a symptom of sedentary activity itself (Rey-Lopez et al., 2008).

5.1 Number of days in past week child watched television

The vast majority of children in BC1 (82%) and BC2 (86%) had watched television every day in the seven days prior to the interview (Table 6.1). A very small proportion of children in both cohorts had not watched television on any day during the past week (4% in BC1 and 2% in BC2). These differences across the cohorts are statistically significant.

Table 5.1 Days watched television in past week, by cohort

	BC1 %	BC2 %
None	4	2
1-3 days	6	5
4-6 days	8	7
7 days	82	86
Unweighted bases	*4191*	*5013*

Tested on category '7 days', differences between cohort p <.001.

Table 5.2 shows the number of days the child watched television over the past week by equivalised household income and cohort. Focussing on the proportion of children who watched television every day during the past week, it is difficult to see a clear, linear pattern between television viewing and income. However, children from households in the lowest income quintiles were more likely to watch television on every day in the past week than children in the highest two income quintiles. This pattern is evident for both BC1 and BC2. As noted before, number of days of television viewing has increased overall between BC1 and BC2. This increase can be seen in almost all income groups (with the exception of the second income quintile) in a similar way. As such, there has been no statistically significant change in the nature of the relationship between household income and television viewing across cohorts.

Table 5.2 Numbers of days in past week child watched television by equivalised household income (quintile) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1					
None	4	4	3	2	3
1-3 days	7	5	6	7	6
4-6 days	6	6	8	9	12
7 days	83	85	83	81	79
BC2					
None	2	3	2	1	1
1-3 days	5	6	4	5	5
4-6 days	5	6	7	9	9
7 days	88	85	87	85	85
Unweighted bases – BC1	*783*	*802*	*761*	*857*	*721*
Unweighted bases – BC2	*980*	*777*	*813*	*775*	*1021*

Tested on category '7 days': differences by income p<.05; differences by cohort p< .001; cohort income p=NS.*

Differences in television viewing by parental level of education are shown in Table 5.3. Whilst there was no linear relationship between parental level of education and television viewing, for both cohorts, children of parents with no qualifications were more likely to watch television every day than children of parents educated to degree level (for example, in BC2, 91% compared with 84%). The proportion of children watching television every day has increased similarly across almost all parental education sub-groups. As such, there has been no change in the relationship between the number of days the child watched television over the past week and parental education between the cohorts.

Table 5.3 Numbers of days in past week child watched television by parental level of education and cohort

	No qualifications %	Lower Standard Grades or VQs or Other %	Upper level SGs or Intermediate VQs %	Higher grades and upper level VQs %	Degree level academic and vocational qualifications %
BC1					
None	5	3	5	3	3
1-3 days	7	6	5	7	7
4-6 days	3	6	6	8	11
7 days	85	86	84	83	79
BC2					
None	4	5	3	2	1
1-3 days	3	3	5	5	6
4-6 days	1	5	4	5	9
7 days	91	87	87	88	84
Unweighted bases – BC1	*200*	*206*	*804*	*1378*	*1596*
Unweighted bases – BC2	*163*	*217*	*710*	*1428*	*2317*

Tested on category '7 days': differences by education p<.001; differences by cohort p< .001; cohort education p=NS.*

Table 5.4 shows that for BC1 children there was no association between the number of days a child watched television in the past week and maternal age at the birth of the child. For BC2 children it appears as though maternal age is associated with television viewing -children of mothers aged 40 or over were less likely to watch television than children of mothers aged under 20 (81% versus 88%). However, differences by age were not statistically significant. There has therefore been no change in the nature of the relationship between the number of days the child watched television over the past week and maternal age between the cohorts.

Table 5.4 Numbers of days in past week child watched television by maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1				
None	4	4	3	5
1-3 days	8	6	6	4
4-6 days	6	7	9	9
7 days	82	83	82	83
BC2				
None	2	2	2	2
1-3 days	5	5	5	6
4-6 days	4	6	7	12
7 days	88	86	86	81
Unweighted bases – BC1	*221*	*1563*	*2229*	*155*
Unweighted bases – BC2	*217*	*1976*	*2570*	*227*

Tested on category '7 days': differences by age p=NS; differences by cohort p< .001; cohort education p=NS.*

Differences in the number of days a child watched television in the past week were also examined by area deprivation (Table 5.5). Between BC1 and BC2, television watching increased for children in all areas, regardless of the level of deprivation. These differences are statistically significant. Table 6.5 shows that there is a slight difference between number of days of television viewing by area deprivation in BC1; children in the three most deprived areas were more likely to watch television every day over the past week than children in the least deprived areas (around 83% in the three most deprived areas compared with 80% in the two least deprived areas). In BC2, the pattern is similar; children living in more deprived areas are still more likely to have watched television every day than those living in less deprived areas. However, the level of difference between the groups was smaller than in BC1. Nevertheless, there has been no statistically significant change in the nature of the relationship between number of days the child has watched television and area deprivation between cohorts.

Table 5.5 Numbers of days in past week child watched television by area deprivation (quintiles) and cohort

	1 Most deprived %	2 %	3 %	4 %	5 Least deprived %
BC1					
None	4	4	4	3	3
1-3 days	6	6	5	8	7
4-6 days	6	7	8	9	10
7 days	84	83	83	80	80
BC2					
None	3	2	2	2	1
1-3 days	4	5	5	6	5
4-6 days	5	5	6	9	8
7 days	88	87	87	83	86
Unweighted bases – BC1	*833*	*698*	*872*	*883*	*905*
Unweighted bases – BC2	*942*	*935*	*1029*	*1063*	*1010*

Tested on category '7 days': differences by area deprivation p<0.5; differences by cohort p< .001; cohort area deprivation p=NS.*

5.2 Time spent watching television on a typical weekday

Table 5.6 presents the time the child spent watching television on a typical weekday by cohort. The most common length of time children watched television on a typical weekday was between 1 to 2 hours (35% of children in BC1 and 38% of children in BC2). Children aged 3 in 2013 were more likely to watch television for longer than children aged 3 in 2007/08. The proportion of children watching more than three hours of television on a typical weekday was 12% in BC1 increasing to 15% of children in BC2. These differences are statistically significant.

Table 5.6 Time spent watching television on a typical weekday by cohort

	BC1	BC2
None	1	4
Up to 1 hour	28	20
Between 1 and 2 hours	35	38
Between 2 and 3 hours	24	24
Over 3 hours	12	15
Unweighted bases	*4024*	*4958*

Tested on category 'Over 3 hours': differences by cohort p <.05

Table 5.7 presents the number of hours the child watched television by equivalised household income and cohort. Looking specifically at children who watched more than three hours of television on a typical weekday, for both cohorts there was a linear relationship between household income and television viewing: the lower the income quintile, the more likely the child was to watch television for over three hours. For example, in BC2, 19% of

children from households in the lowest income quintile watched more than three hours of television every day compared with 14% of children from households in the third income quintile and 5% of children from households in the highest income quintile. Differences by income were statistically significant. Each income quintile has seen an increase (between BC1 and BC2) in the proportion of children watching three hours or more of television on a weekday so there has been no statistically significant change in the strength of this relationship between the cohorts.

Table 5.7 Time child spends watching television on an average weekday by equivalised household income (quintile) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1					
None	0	0	1	1	1
Up to 1 hour	25	27	25	29	32
Between 1 and 2 hours	31	32	35	40	40
Between 2 and 3 hours	24	27	25	23	21
Over 3 hours	19	15	14	7	5
BC2					
None	3	5	4	4	4
Up to 1 hour	16	20	18	22	27
Between 1 and 2 hours	32	33	40	41	44
Between 2 and 3 hours	27	25	24	23	18
Over 3 hours	21	16	15	9	6
Unweighted bases – BC1	*741*	*768*	*732*	*834*	*698*
Unweighted bases – BC2	*963*	*769*	*808*	*769*	*1013*

Tested on category 'Over 3 hours': differences by equivalised household income p< .001; differences by cohort p< .05; cohort equivalised household income p=NS.*

The amount time a child watched television on an average weekday also varied by level of parental education (Table 5.8). Children of parents educated to degree level were less likely to watch television for more than three hours than children of parents with no qualifications (in BC1, 7% compared with 20%). As noted earlier, BC2 children were more likely to watch more television overall and this increase is apparent amongst children in all education sub-groups. Thus there has been no notable change in the nature of the relationship between time spent watching television on a weekday and parental level of education between the cohorts.

Table 5.8 Time child spends watching television on an average weekday by parental level of education and cohort

	No qualifications %	Lower Standard Grades or VQs or Other %	Upper level SGs or Intermediate VQs %	Higher grades and upper level VQs %	Degree level academic and vocational qualifications %
BC1					
None	<1	<1	<1	<1	1
Up to 1 hour	20	24	24	28	31
Between 1 and 2 hours	33	29	32	36	38
Between 2 and 3 hours	26	27	27	24	22
Over 3 hours	20	20	17	12	7
BC2					
None	4	3	4	4	5
Up to 1 hour	12	13	14	18	25
Between 1 and 2 hours	32	31	30	38	42
Between 2 and 3 hours	26	32	29	25	19
Over 3 hours	26	21	23	15	9
Unweighted bases – BC1	*186*	*200*	*756*	*1338*	*1537*
Unweighted bases – BC2	*160*	*208*	*698*	*1412*	*2304*

Tested on category 'Over 3 hours': differences by education p< .001; differences by cohort p< .01; cohort education p=NS.*

Table 5.9 shows the amount of television a child watches on a typical weekday by the mother's age at the time of the child's birth and cohort. We see that there was an association between mother's age and the child's television viewing habits. Likelihood of watching three or more hours of television on a typical day decreases as maternal age increases. In BC1, 17% of children whose mother was aged under 20 watched television for more than three hours compared with 11% of children whose mother was aged 40 or older. The corresponding figures in BC2 were 23% and 11%. There has been no statistically significant change in the nature of this relationship between the cohorts.

Table 5.9 Time child spends watching television on an average weekday by maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1				
None	<1	<1	1	<1
Up to 1 hour	23	27	30	26
Between 1 and 2 hours	37	34	35	41
Between 2 and 3 hours	23	24	24	22
Over 3 hours	17	14	10	11
BC2				
None	4	4	4	5
Up to 1 hour	16	18	22	27
Between 1 and 2 hours	26	36	41	36
Between 2 and 3 hours	31	24	22	21
Over 3 hours	23	17	11	11
Unweighted bases – BC1	*209*	*1500*	*2145*	*147*
Unweighted bases – BC2	*211*	*1953*	*2547*	*224*

Tested on category 'Over 3 hours': differences by maternal age p< .001; differences by cohort p=NS; cohort maternal age p=NS.*

Table 5.10 presents the number of hours the child watched television on an average weekday by area deprivation and cohort. If we consider those children that watch television for over three hours on a typical day, there is a statistically significant association between area deprivation and television viewing: the more deprived an area a child lived in, the more likely they were to watch more hours of television. For example, in BC1 nearly two in ten (18%) of children from the most deprived areas watched television for over three hours compared with nearly one in ten (8%) of children from the least deprived areas. The corresponding figures for BC2 are 19% compared with 8%. There was no statistically significant difference in results between the cohorts.

Table 5.10 Time child spends watching television on an average week day by area deprivation (quintiles) and cohort

	1 Most deprived %	2 %	3 %	4 %	5 Least deprived %
BC1					
None	0	1	0	1	1
Up to 1 hour	24	28	29	30	28
Between 1 and 2 hours	33	33	35	34	42
Between 2 and 3 hours	25	24	24	25	22
Over 3 hours	18	13	12	10	8
BC2					
None	2	2	2	3	4
Up to 1 hour	18	23	24	27	27
Between 1 and 2 hours	33	34	37	39	42
Between 2 and 3 hours	27	25	24	22	20
Over 3 hours	19	16	14	10	8
Unweighted bases – BC1	*793*	*669*	*832*	*848*	*882*
Unweighted bases – BC2	*926*	*926*	*1015*	*1052*	*1008*

Tested on category 'Over 3 hours': differences by area deprivation p< .001; differences by cohort p=NS; cohort equivalised household income p=NS.*

5.3 Time child spent watching television during a typical weekend

Table 5.11 shows the amount of television that children aged three in Scotland watched during an average weekend. Children in BC2 spent significantly more time watching television during an average weekend than children in BC1. Looking at the proportion of children watching more than three hours during a typical weekend, 26% of BC1 children did this compared with 42% of children in BC2. This represents a notable and statistically significant increase in the amount of television viewing. This increase is evident amongst children from all socio-economic backgrounds. It is hard to draw any firm conclusions about what this increase in screen time might mean for later outcomes. Previous research on activity levels at age 6 using GUS data found that those children who had had higher levels of screen use when they were younger continued to have high levels of screen time at age 6. However, the impact on high levels of screen time on physical activity is less clear. Although children with high levels of screen time at age 6 were less likely to meet the recommended targets for 60 minutes a day of moderate to vigorous physical activity age 6, the majority of these children (83%) still met the target (Parkes et al., 2012).

Table 5.11 Time child spent watching television during a typical weekend by cohort

	BC1	BC2
None	4	6
Up to 1 hour	20	6
Between 1 and 2 hours	26	20
Between 2 and 3 hours	24	26
Over 3 hours	26	42
Unweighted bases	*4021*	*4732*

Tested on category 'Over 3 hours': differences by cohort p <.001

There is an association between the time a child spends watching television and household income (Table 5.12). Generally, children from lower income households were more likely to watch television for more than three hours over the weekend. For example, in BC1 around 30% of children in the lowest two income quintiles watched television for more than three hours compared with 21% of children from households in the highest income quintile. The pattern is slightly different in BC2 where household income was less related to television viewing. Whilst children in the lowest income group were more likely, and those in the highest income group were less likely, than those in any other group to have watched television for more than three hours, the children in the middle three groups were broadly similar. Whilst the pattern appears different, the social gradient remains and there was no statistically significant change in the nature of the relationship between income and television viewing between the cohorts.

Table 5.12 Time child spent watching television during a typical weekend by equivalised household income (quintile) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1					
None	6	4	4	3	3
Up to 1 hour	18	20	20	19	21
Between 1 and 2 hours	23	25	26	29	29
Between 2 and 3 hours	24	21	23	25	25
Over 3 hours	29	30	28	23	21
BC2					
None	7	7	5	5	5
Up to 1 hour	6	7	6	7	6
Between 1 and 2 hours	16	21	21	21	23
Between 2 and 3 hours	23	26	25	26	29
Over 3 hours	48	39	42	40	37
Unweighted bases – BC1	*738*	*769*	*731*	*835*	*698*
Unweighted bases – BC2	*915*	*726*	*776*	*730*	*975*

Tested on category 'Over 3 hours': differences by equivalised household income p< .001; differences by cohort p< .001; cohort equivalised household income p=NS.*

There was also an association between parental level of education and a child's television viewing over a typical weekend (Table 5.13). Children from households with more highly educated parents were less likely to watch television for over three hours than children whose parents had lower qualifications. In BC1, this relationship was linear: as the level of education increased the proportion of children watching television for longer hours decreased. 34% of children whose parents had no qualifications watched television for more than three hours compared with 23% of children whose parents were educated to degree level. Whilst in BC2 children with degree educated parents were still the group least likely to have watched television for three or more hours during a typical weekend, the broader linear pattern by level of education seen in BC1 is not as apparent. Nevertheless, there has been no statistically significant change in the nature of the relationship between parental level of education and television viewing over a typical weekend by cohort.

Table 5.13 Time child spent watching television during a typical weekend by parental level of education and cohort

	No qualifications	Lower Standard Grades or VQs or Other	Upper level SGs or Intermediate VQs	Higher grades and upper level VQs	Degree level academic and vocational qualifications
	%	%	%	%	%
BC1					
None	4	4	5	4	4
Up to 1 hour	17	24	18	20	20
Between 1 and 2 hours	21	14	26	27	29
Between 2 and 3 hours	24	28	24	23	24
Over 3 hours	34	30	28	26	23
BC2					
None	7	7	8	8	5
Up to 1 hour	6	5	5	7	6
Between 1 and 2 hours	16	15	16	19	23
Between 2 and 3 hours	24	26	21	25	28
Over 3 hours	46	47	50	41	38
Unweighted bases – BC1	*185*	*200*	*757*	*1337*	*1536*
Unweighted bases – BC2	*155*	*200*	*666*	*1358*	*2185*

Tested on category 'Over 3 hours': differences by education p< .001; differences by cohort p< .001; cohort education p=NS.*

Table 5.14 shows differences in duration of weekend television watching by maternal age. There was no statistically significant association between the mother's age at the birth of the child and the amount of television a child watched over the weekend in either cohort.

Table 5.14 Time child spent watching television during a typical weekend by maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1				
None	6	5	3	6
Up to 1 hour	15	20	20	20
Between 1 and 2 hours	24	24	28	22
Between 2 and 3 hours	31	22	24	22
Over 3 hours	25	28	25	30
BC2				
None	5	8	5	4
Up to 1 hour	6	6	7	3
Between 1 and 2 hours	16	19	20	25
Between 2 and 3 hours	23	26	25	27
Over 3 hours	50	40	43	41
Unweighted bases – BC1	*209*	*1495*	*2148*	*147*
Unweighted bases – BC2	*199*	*1849*	*2450*	*211*

Tested on category 'Over 3 hours': differences by age NS; differences by cohort p< .001; cohort education p=<01*

Table 5.15 shows there was some association between area deprivation and the amount of time a child watched television. Children from the most deprived areas tended to watch more television than children from the least deprived areas. For example, in BC2, 43-48% of children living in areas in the three most deprived quintiles watched three or more hours of television in a typical weekend compared with around 35% of children living in the two least deprived quintiles. These differences across areas were statistically significant. The general increase between cohorts in the proportion of children watching three or more hours of television is evident amongst children from all areas, regardless of deprivation. As such, there was no statistically significant change in the nature or strength of the relationship between area deprivation and television viewing between the cohorts.

Table 5.15 Time child spent watching television during a typical weekend by area deprivation (quintiles) and cohort

	1 Most deprived %	2 %	3 %	4 %	5 Least deprived %
BC1					
None	5	5	4	4	4
Up to 1 hour	20	21	19	19	20
Between 1 and 2 hours	22	24	25	28	31
Between 2 and 3 hours	23	23	22	25	26
Over 3 hours	30	26	30	24	20
BC2					
None	7	7	5	6	7
Up to 1 hour	5	6	7	8	7
Between 1 and 2 hours	17	17	19	22	24
Between 2 and 3 hours	22	26	26	28	26
Over 3 hours	48	44	43	35	36
Unweighted bases – BC1	*793*	*667*	*831*	*848*	*882*
Unweighted bases – BC2	*886*	*881*	*973*	*993*	*969*

Tested on category 'Over 3 hours': differences by area deprivation p< .001; differences by cohort p< .001; cohort area deprivation p=NS.*

chapter 6

PARENTING SUPPORT

The Early Years Framework (Scottish Government, 2008a) acknowledges the central importance of parenting and family capacity in delivering improved outcomes for children and families by making this one of the four core strands. In so doing, the Framework highlights the importance of providing parents with appropriate and integrated support which will, amongst other things, allow them "to develop the skills needed to provide a nurturing and stimulating home environment free from conflict" and "meet a range of needs they [parents] may have" (Scottish Government, 2008a: 11). Supporting parents is not just about providing greater access to the right sort of formal services, informal social support networks also play a significant part in helping parents in their role. The importance of informal support for families with multiple disadvantages, but particularly with low incomes, has already been recognised in previous GUS research (Mabelis and Marryat, 2011; Bradshaw et al, 2009; Bradshaw et al., 2008). Low social support has been associated with poor maternal mental health, a factor linked to poorer child outcomes (Marryat and Martin, 2010). In addition, strong maternal social networks have been shown to protect children living in persistently low incomes from poorer wellbeing (Treanor, 2015).

This chapter compares differences in attitudes and experiences related to parenting support. In particular, it provides insight into parents' access to informal support and their attitudes towards seeking and accessing support. This chapter therefore presents an important and influential part of the environment within which children are growing up.

6.1 Informal support

Previous research has demonstrated the importance of sources of informal support for help, information and advice on child health concerns. Participants were asked how easy it would be for them to find someone at short notice to look after the cohort child for a few hours during the day. The results for each cohort are shown in Table 6.1.

The majority of parents in both cohorts found it very or fairly easy to arrange this sort of short notice childcare. However, parents in BC2 found it less easy than those in BC1. 77% of parents in BC1 said it would be very or fairly easy to arrange this sort of care compared with 68% of parents in BC2. In contrast, 26% of parents in BC2 said it would be very or fairly difficult compared with 17% in BC1. These differences are statistically significant.

Table 6.1 How easy or difficult would it be to find someone to look after the cohort child for couple of hours during the day at short notice, by cohort

	BC1 %	BC2 %
Very easy	40	32
Fairly easy	37	36
Neither easy nor difficult	6	5
Fairly difficult	11	15
Very difficult	6	11
Unweighted bases	*4193*	*5019*

Tested on category 5 'very difficult': differences by cohort p < .001

As Table 6.2 shows, to some extent the relationship between income and ease of arranging short notice childcare is similar in both cohorts. For each, parents in lower income households were more likely to say they found arranging short notice childcare 'very difficult'. In BC1, the difference is very slight – only around 2 percentage points. In BC2, it is a little more pronounced – 8% amongst parents in the highest income group compared with 14% in the lowest income group. These differences are statistically significant. Nevertheless, there is no corresponding linear pattern amongst those who found it 'very easy'. That is, higher income parents were not any more likely to find arranging this childcare very easy than lower income parents were, in either cohort. The main change to note is that the higher level of difficulty in arranging this type of care amongst parents in BC2 is evident in each income group. For example, among the lowest income group the proportion of parents who found it very difficult increased from 8% in BC1 to 14% in BC2 and among the highest income group from 6% in BC1 to 8% in BC2.

Table 6.2 How easy or difficult would it be to find someone to look after the cohort child for couple of hours during the day at short notice, by equivalised household income (quintiles) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1					
Very easy	37	45	42	37	38
Fairly easy	35	32	37	43	37
Neither easy nor difficult	7	6	5	4	5
Fairly difficult	13	10	10	10	14
Very difficult	8	5	5	5	6
BC2					
Very easy	33	30	33	34	29
Fairly easy	33	37	37	40	41
Neither easy nor difficult	6	6	5	4	5
Fairly difficult	14	15	16	12	16
Very difficult	14	12	10	9	8
Unweighted bases – BC1	*783*	*803*	*761*	*858*	*721*
Unweighted bases – BC2	*981*	*778*	*814*	*776*	*1021*

*Tested on category 5 'very difficult': differences by income p < .05; differences by cohort p < .001; cohort*income p = NS.*

In terms of parental level of education (Table 6.3), again the main change to note is that the higher level of difficulty in arranging this type of care amongst parents in BC2 is evident in each sub-group. For example, 7% of parents with a degree-level qualification or equivalent in BC1 found it very difficult compared with 10% of parents in the same group in BC2. Similarly, amongst parents with no qualifications, the proportion who found it very difficult to arrange short notice care increased from 9% in BC1 to 13% in BC2. The pattern by education level in each cohort is similar to income in that social differences are a little more evident in BC2 than BC1. In BC2 those educated to Standard Grade or below are more likely to have found arranging this care 'very difficult' than those with Higher Grade qualifications or above though the pattern is not completely linear (the group most likely to report it being 'very difficult' was those who had lower Standard Grades or equivalent). This pattern is less evident in BC1 where there is less variation in the proportion who found it very difficult by level of education. Differences in the relationship by income in each cohort are statistically significant.

Table 6.3 How easy or difficult would it be to find someone to look after the cohort child for a couple of hours during the day at short notice, by parental level of education and cohort

	No qualifications	Lower Standard Grades or VQs or Other	Upper level SGs or Intermediate VQs	Higher grades and upper level VQs	Degree level academic and vocational qualifications
	%	%	%	%	%
BC1					
Very easy	44	46	42	44	34
Fairly easy	26	35	35	37	40
Neither easy nor difficult	6	5	5	6	6
Fairly difficult	13	8	11	10	13
Very difficult	9	5	7	4	7
BC2					
Very easy	37	36	34	35	28
Fairly easy	31	31	34	35	40
Neither easy nor difficult	3	6	5	5	5
Fairly difficult	13	10	12	15	17
Very difficult	13	16	15	10	10
Unweighted bases – BC1	*200*	*206*	*804*	*1379*	*1597*
Unweighted bases – BC2	*164*	*217*	*714*	*1428*	*2318*

*Tested on category 5 'very difficult': differences by income $p < .001$; differences by cohort $p < .01$; cohort*level of education $p < .05$*

In both cohorts, mothers aged 40 or older found it more difficult than younger mothers to organise this sort of care. In BC2, 36% of those aged 40 or older said it would be very or fairly difficult compared with 21% of mothers under 20 and around 25% of those aged between 20 and 39 (Table 6.4).

Differences by age are statistically significant in both BC1 and BC2. In all age groups, mothers in BC2 reported greater difficulty than those in BC1, following the pattern seen above in other sub-groups. There was a similar relationship between access to short-notice childcare and maternal age (at child's birth) in both cohorts.

Table 6.4 How easy or difficult would it be to find someone to look after the cohort child for couple of hours during the day at short notice, by maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1				
Very easy	47	43	38	24
Fairly easy	30	35	39	44
Neither easy nor difficult	8	6	5	3
Fairly difficult	11	10	12	18
Very difficult	4	5	6	11
BC2				
Very easy	39	33	31	22
Fairly easy	32	36	38	36
Neither easy nor difficult	7	5	5	5
Fairly difficult	13	14	16	22
Very difficult	8	11	11	14
Unweighted bases – BC1	*221*	*1565*	*2229*	*155*
Unweighted bases – BC2	*217*	*1979*	*2573*	*227*

*Tested on category 5 'very difficult': differences by maternal age - BC1 p < .001/BC2 p < .001; differences by cohort p < .001; cohort*maternal age p = NS.*

Comparison by area deprivation again shows that within each sub-group parents in BC2 reported a greater level of difficulty arranging this care than did parents in BC1 (Table 6.5). For example, amongst those living in areas in the most deprived quintile, 5% of parents in BC1 said it would be very difficult compared with 10% of parents living in similar areas in BC2. By comparison with the other measures of socio-economic status, there is not a particularly strong relationship between ease of arranging this care and area deprivation. Indeed, for BC2, differences by area deprivation are not statistically significant. In BC1, parents living in the two most deprived areas are slightly less likely than those living in areas in the three least deprived quintiles to find arranging short notice care both very easy and very difficult. However, differences are very small.

Table 6.5 How easy or difficult would it be to find someone to look after the cohort child for a couple of hours during the day at short notice, by area deprivation (quintiles) and cohort

	1 Most deprived %	2 %	3 %	4 %	5 Least deprived %
BC1					
Very easy	37	38	40	46	41
Fairly easy	41	41	37	32	33
Neither easy nor difficult	5	4	6	5	7
Fairly difficult	11	11	10	11	12
Very difficult	5	5	7	6	7
BC2					
Very easy	30	32	31	33	35
Fairly easy	39	39	40	35	31
Neither easy nor difficult	6	5	5	5	5
Fairly difficult	15	15	15	16	13
Very difficult	10	9	10	11	15
Unweighted bases – BC1	*905*	*884*	*873*	*698*	*833*
Unweighted bases – BC2	*1011*	*1064*	*1031*	*936*	*943*

*Tested on category 5 'very difficult': differences by income - BC1 p < .001/BC2 p = NS; differences by cohort p < .001; cohort*area deprivation p = NS.*

There are several key findings in this section. First, parents in BC2 were more likely than those in BC1 to say they would find it very difficult to organise someone to look after the child for a few hours at short notice. This increased difficulty happened for parents across all socio-economic sub-groups. Second, parents in more disadvantaged circumstances – as measured by lower income levels and lower educational qualifications - tended to have greater difficulty organising this type of care than those in more advantaged circumstances. Though despite being more likely to have lower incomes and qualifications than older mothers, younger mothers had less difficulty organising this care than older mothers did.

The question used for this analysis will provoke parents to think of informal sources of support in the first instance. These are usually more flexible, available and convenient for the sort of last minute, short duration childcare which is referenced. However, the question does not ask parents to exclude other more formal sources they may use for this sort of scenario. As such, if parents have a regular childcare arrangement with a nursery or childminder they may have reasonably taken these into consideration when answering the question. Previous GUS research has shown that parents in more advantaged circumstances use a wider range of providers for childcare and are more likely to be using a mix of formal and informal providers (Bradshaw and Wasoff, 2009) than those in more disadvantaged circumstances. Many disadvantaged parents thus have a narrower pool of resources to draw on which may explain their greater difficulty in arranging short notice care for the child. However, the trend is reversed for younger mothers. Despite being more likely to live in more disadvantaged

households, they were less likely than older mothers – who tend to live in more advantaged households – to have difficulty arranging short notice care. A large part of this reversal is explained by the living arrangements of younger mothers. Those in the youngest age groups are significantly more likely to live with their own parents – the child's grandparents – than older mothers are. Whilst this is also more common amongst lower income and lower educated families, it is particularly pronounced for younger mothers. When the child was aged 3, 14% of mothers in BC2 aged under 20 at the child's birth lived in the same household as one of the child's grandparents compared with 3% of mothers aged 40 or older and just 1% of mothers in their thirties. This greater, immediate access to grandparents for these mothers is likely to make arranging short notice care easier.

It is not only short notice childcare that appears to have been more difficult to arrange for parents in BC2, similar trends are also seen in relation to arranging more regular, planned childcare. Parents in BC2 said they found it less easy to arrange regular childcare than those in BC1 – 35% of parents in BC1 found it very easy compared with 31% of parents in BC2.[16] There is no evidence that this is because mothers in BC2 have more limited social networks or are more socially isolated than parents in BC1.[17] The change is perhaps therefore more likely to be due to a combination of increased pressures on, and resulting lower availability of, formal childcare providers as well as other demands on the time of informal providers. For example, the increase in full-time working among main carers (see paragraph 3.4) suggests that mothers in BC2 may have less time to provide childcare for their peers than was the case in BC1. In addition, an increase in the average age of retirement during the period between cohorts (ONS, 2013) means that a greater number of grandparents of children in BC2 were likely to still be working when the child was aged 3, impacting on their availability for childcare.

6.2 Attitudes to support with parenting

In both cohorts, parents have been asked the extent to which they agreed or disagreed with a range of statements about help-seeking behaviour and accessing support.[18]

- "If you ask for help or advice on parenting from professionals like doctors or social workers, they start interfering or trying to take over."

- "Professionals like health visitors do not offer parents enough advice and support with bringing up their children."

- "If other people knew you were getting professional advice or support with parenting, they would probably think you were a bad parent."

16 Note the reference period varies slightly on this question between the cohorts. In BC1, parents were asked how easy or difficult they had found arranging suitable childcare for the child in the last year. For BC2, the reference period was the last two years.

17 For example, 83% of parents in BC1 and 87% in BC2 agreed or strongly agreed that they felt close to most of their family. 87% in BC1 and 89% in BC2 agreed that their friends took notice of their opinions and 76% in BC1 and 78% in BC2 said they "got enough help" from family and friends. Note BC1 questions were asked at age 3, BC2 at age 4.

18 Responses were on a five point scale ranging from 'strongly agree' to 'strongly disagree'.

- "It's difficult to ask people for help or advice unless you know them really well."
- "It's hard to know who to ask for help or advice about being a parent."

Agreement with the statements suggests reluctance to seek help or support either through formal services or informally. For example, if you agree that when you ask for help or advice from professionals they start interfering and trying to take over, this would suggest you are more likely to feel uncomfortable seeking help and advice from these formal sources.

Parents in both cohorts were not asked these questions at the same age point. For parents in BC2, the child was aged 3 – as with all other data in this report. However, parents in BC1 were asked when the child was aged 4.[19] This difference in age, and the associated additional experience of parenting (particularly in cases where this is the only child in the family) may affect responses to these items. In earlier analysis of GUS data from BC1, Mabelis and Marryat (2011) compared parental attitudes to formal support when the child was aged 10 months and 4 years. This analysis showed that whilst the majority of parents (between 53% and 62% depending on the question) retained the same attitudes over time - suggesting that for most, experience of parenthood doesn't change their perspective on formal support - a reasonable proportion of parents did show a change in attitude. This has implications for the comparison between cohorts. However, the intervening period for the comparison in Mabelis and Marryat (2011) was three years. In this instance, there is only one year of parenting experience separating the cohorts. Thus whilst any differences between the cohorts should be treated with some caution, we nevertheless believe there is merit in the comparison.

Table 6.6 shows the proportion of parents who agreed or disagreed with each statement by cohort. In both cohorts parents were most likely to agree that it was difficult to ask people for help unless you know them really well and least likely to agree with the first statement, concerning interference from professionals. However, there is a notable change between cohorts which is evident in all statements. Parents in BC2 were less likely than those in BC1 to say they neither agreed nor disagreed and more likely to disagree.[20] For example, 61% of parents in BC1 disagreed with the first statement on interference compared with 73% of parents in BC2. These differences are statistically significant. Nevertheless, it is those parents who agree with the statements – indicating a wariness of and reluctance to use sources of support - that are of particular concern and the proportion agreeing to the statements shows little change between cohorts.

19 All items asked of parents in BC2 when the child was aged 3 were also asked of parents in BC1 when the child was aged 4. A reduced set of three items was also asked of parents in BC1 when the child was aged 2. We have opted for the fuller comparison available using the BC1 age 4 data.

20 That is the proportion who selected 'disagree' or 'disagree strongly' combined.

Table 6.6 % of parents who agreed or disagreed with each statement by cohort

		Strongly agree	Agree	Neither	Disagree	Strongly disagree	*Unwtd bases*
If you ask for help or advice on parenting from professionals like doctors or social workers, they start interfering or trying to take over							
BC1	%	2	7	30	51	10	*3785*
BC2	%	2	8	17	57	16	*4977*
Professionals like health visitors do not offer parents enough advice and support with bringing up their children							
BC1	%	2	14	34	45	5	*3793*
BC2	%	3	16	20	51	10	*4996*
If other people knew you were getting professional advice or support with parenting, they would probably think you were a bad parent							
BC1	%	3	22	24	47	5	*3882*
BC2	%	2	20	15	53	10	*5014*
It's difficult to ask people for help or advice unless you know them really well							
BC1	%	3	30	17	46	3	*3888*
BC2	%	3	26	12	53	6	*5015*
It's hard to know who to ask for help or advice about being a parent							
BC1	%	2	23	18	53	4	*3885*
BC2	%	3	21	11	59	7	*5014*

Tested on 'strongly disagree'. Differences by cohort on all items are statistically significant $p < 0.001$

To provide an overview of differences in attitudes to help-seeking and support a summary measure was created indicating reluctance to help-seeking. A count was made of the number of statements each parent agreed to (including strongly agreed). Those who agreed to two or more statements were classed as reluctant to seek help.

In BC2, 29% of parents were categorised as reluctant to seek help (Table 6.7). This included 16% who agreed with two statements, 8% who agreed with three statements, 4% who agreed with four statements and 1% who agreed with all five statements. There was no statistically significant difference between cohorts in the proportion classed as reluctant to seek help or in the number of statements parents agreed to.

Table 6.7 Is parent classed as reluctant to seek help and number of statements parent agreed to, by cohort

	BC1 %	BC2 %
Is parent classed as a reluctant help-seeker?		
No	70	71
Yes	30	29
Number of statements parent agreed to		
0	45	46
1	25	25
2	15	16
3	9	8
4	4	4
5	2	1
Unweighted bases	*3717*	*4955*

Tested on category 5 'very difficult': differences by cohort p < .001

Table 6.8 shows the extent to which reluctant help-seeking varied between parents with different household income. Similar to the findings from earlier GUS analysis (Mabelis and Marryat, 2011), reluctance was more common amongst parents in more disadvantaged circumstances than amongst those in more advantaged circumstances with the proportion of reluctant parents decreasing as level of advantage increased. This pattern is clear in both cohorts. For example, parents in the lowest income quintile were around twice as likely to be in the reluctant group than those in the highest income group (for BC2, 39% compared with 18%). Differences by income are statistically significant. The proportion of parents in each income group within each cohort classed as reluctant help seekers is very similar. Indeed, differences by cohort are not statistically significant.

Table 6.8 % of parents classed as reluctant to seek help, by cohort and equivalised household income (quintiles)

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1	44	29	27	21	20
BC2	39	32	25	23	18
Unweighted bases – BC1	*656*	*719*	*687*	*781*	*639*
Unweighted bases – BC2	*968*	*764*	*803*	*766*	*1012*

*Differences by income p < .001; differences by cohort p = NS; cohort*income p = NS.*

Table 6.9 compares the proportion of parents classed as reluctant to seek help by level of education and cohort. The pattern is similar to the previous table. In both cohorts, parents with lower qualifications are more likely to show reluctance towards help-seeking. Differences by level of education are statistically significant. There is little change evident amongst education sub-groups between cohorts.

Table 6.9 % of parents classed as reluctant to seek help, by cohort and parental level of education

	No qualifications	Lower Standard Grades or VQs or Other	Upper level SGs or Intermediate VQs	Higher grades and upper level VQs	Degree level academic and vocational qualifications
	%	%	%	%	%
BC1	48	37	37	30	21
BC2	47	42	35	30	21
Unweighted bases – BC1	*153*	*168*	*707*	*1241*	*1442*
Unweighted bases – BC2	*160*	*211*	*707*	*1411*	*2294*

*Differences by level of education p < .001; differences by cohort p = NS; cohort*education age p = NS.*

Differences by maternal age are again similar (Table 6.10). Younger mothers in both cohorts are more likely to be classed as reluctant to seek help. Differences by maternal age are statistically significant. Comparing parents within each age group across cohorts shows there has been almost no change in the proportion in each sub-group who are reluctant to seek help.

Table 6.10 % of parents classed as reluctant to seek help, by cohort and maternal age at child's birth

	Under 20 years old	20 to 29 years old	30 to 39 years old	40 or older
	%	%	%	%
BC1	43	31	26	25
BC2	43	33	23	22
Unweighted bases – BC1	*173*	*1366*	*2028*	*132*
Unweighted bases – BC2	*213*	*1958*	*2538*	*223*

*Differences by maternal age p < .001; differences by cohort p = NS; cohort*maternal age p=NS.*

In both cohorts, parents living in more deprived areas are more likely to be classed as reluctant to seek help than those living in less deprived areas (Table 6.11). For example, in BC2, 20% of parents living in areas in the least deprived quintile showed reluctance towards help-seeking compared with 39% of those living in areas in the most deprived quintile. Differences by area deprivation are statistically significant. As with prior comparisons, there has been no change in the proportion in each sub-group classed as reluctant to seek help. Differences by cohort are not statistically significant.

Table 6.11 % of parents classed as reluctant to seek help, by cohort and area deprivation (quintiles)

	1 Most deprived	2	3	4	5 Least deprived
	%	%	%	%	%
BC1	39	38	27	23	21
BC2	39	35	26	22	20
Unweighted bases – BC1	*698*	*627*	*775*	*802*	*815*
Unweighted bases – BC2	*932*	*923*	*1015*	*1051*	*1001*

*Differences by area deprivation p < .001; differences by cohort p = NS; cohort*maternal age p = NS.*

In summary, attitudes to seeking help don't appear to have changed between the cohorts. However, as noted earlier, the attitudes were measured at when children in each cohort were slightly different ages. This difference may have affected the results. A measure taken at the same age point would provide a more robust comparison.

chapter 7

PARENTAL HEALTH

This chapter presents findings on parental health including general health, and longstanding illness as well as measures of parental physical and mental wellbeing.

Parental health and wellbeing is an important influence on parenting behaviours and on children in their early years. Previous analysis of GUS data has shown that among children born into the most disadvantaged backgrounds, the likelihood of experiencing negative outcomes over their first four years (including poor cognitive, social, emotional and behavioural outcomes as well as poor physical health) was reduced if their mother had not experienced a long-term health problem or disability during that period (Bromley and Cunningham-Burley, 2010). Analysis of GUS data has also shown that children whose mothers were emotionally well during their first four years had better social, emotional and behavioural development than those whose mothers had brief mental health problems. Children of mothers with brief mental health problems, in turn, had better development than those whose mothers had repeated mental health problems. These relationships remained significant even after taking account of other family characteristics and socio-economic circumstances (Marryat and Martin, 2010).

7.1 General health

All respondents were asked to assess their general health as either 'excellent' 'very good, 'good', 'fair' or 'poor'. Self-assessed health is a useful measure of how individuals regard their own overall health status. Assessments have been shown to be strongly related to the presence of chronic and acute disease, as well as being a good predictor of hospital admission and mortality (Idler et al., 1997; Hanlon et al., 2007).

The vast majority of parents reported that their health was at least 'good' (86% in both BC1 and BC2, Table 7.1). There was a slight decrease in the proportion of parents reporting 'excellent' or 'very good health' between 2007/08 and 2013. In BC1, 21% of parents said their health was 'excellent' compared with 17% of parents in BC2. This small difference was statistically significant. The proportion of parents reporting 'poor' health decreased slightly from 3% in BC1 to 2% in BC2.

Table 7.1 Parental general health by cohort

	BC1 %	BC2 %
Excellent	21	17
Very good	39	37
Good	26	32
Fair	11	12
Poor	3	2
Unweighted bases	*4171*	*4975*

Tested on category 'excellent', differences between cohort p <.001

Table 7.2 shows that there is a linear and statistically significant relationship between parental health and income: as income increases so too does the proportion of parents reporting 'excellent' health. In BC1, 29% of parents in the highest household income quintile reported excellent health compared with 14% of parents in the lowest household income quintile. This trend prevails amongst BC2 parents with 22% of parents from the highest income quintile households reporting excellent health compared with 14% of parents from households in the lowest income quintile. The decline in self-reported excellent health is seen across all income groups in BC2 with the exception of the lowest income group. However, there has been no statistically significant change in the nature of the relationship between health and household income between the two cohorts.

As well as there being a linear relationship between income and 'excellent' health, there is also a relationship between income and the proportion of parents reporting 'poor' health. Amongst BC1 parents, 6% of those in the lowest income quintile reported poor health compared with 1% of parents in the highest income quintile. There was no statistically significant difference, between BC1 and BC2 in the proportion of parents assessing their health as poor.

Table 7.2 Parental general health by equivalised household income (quintile) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1					
Excellent	14	19	20	28	29
Very good	29	41	40	42	44
Good	32	27	27	22	21
Fair	19	11	11	7	5
Poor	6	2	2	1	1
BC2					
Excellent	14	13	16	22	22
Very good	28	37	38	39	44
Good	35	32	34	31	26
Fair	19	15	10	7	6
Poor	4	3	2	1	1
Unweighted bases – BC1	*773*	*802*	*759*	*857*	*719*
Unweighted bases – BC2	*968*	*774*	*809*	*774*	*1020*

*Tested on category 'excellent': differences by income p < .001; differences by cohort p < .000; cohort*income p < .0286*

Table 7.3 shows that parental general health is also related to the level of parental education. Whilst this relationship is not strictly linear, parents educated to degree level reported higher levels of excellent health than all the other groups. For example, amongst BC1 parents, 27% of parents educated to degree level reported excellent health compared with 19% of parents with no qualification. Amongst BC2 parents, 21% of parents educated to degree level said their health was excellent compared with 11-15% of parents with lower qualifications. Differences in self-reported health by levels of parental education were statistically significant in both cohorts. The decrease in the proportion of parents reporting 'excellent' or 'very good health' between 2007/08 and 2013 was seen across all levels of parental education. As such, as with household income, there was no statistically significant difference in the relationship between self-reported health and level of education between BC1 and BC2.

Focusing on the proportion of parents with poor health, the table shows that this has declined between the two cohorts amongst those with no qualifications. This difference is not statistically significant.

Table 7.3 Parental general health by parental level of education and cohort

	No qualifications	Lower Standard Grades or VQs or Other	Upper level SGs or Intermediate VQs	Higher grades and upper level VQs	Degree level academic and vocational qualifications
	%	%	%	%	%
BC1					
Excellent	19	15	17	19	27
Very good	31	32	37	39	41
Good	21	35	30	28	22
Fair	22	13	13	11	7
Poor	6	5	3	2	2
BC2					
Excellent	15	11	11	15	21
Very good	29	28	35	35	41
Good	32	40	33	33	28
Fair	22	17	16	13	8
Poor	2	5	4	3	1
Unweighted bases – BC1	*195*	*204*	*799*	*1371*	*1595*
Unweighted bases – BC2	*155*	*211*	*709*	*1420*	*2311*

Tested on category 'Excellent': differences by education p< .001; differences by cohort p< .001; cohort education p=NS.*

Table 7.4 shows that mothers aged 40 or older at the birth of their child were more likely to report excellent health than younger mothers. In BC1, 26% of mothers aged over 40 reported excellent health compared with 15% of mothers aged under 20 years old. In BC2, there is a similar pattern though reports of excellent health have decreased amongst all age groups. As such, whilst the proportion of each age group who reported excellent health has reduced, there have been no statistically significant changes in the relationship between maternal age and self-reported health between the cohorts. With regard to self-reported 'poor' health, whilst amongst the youngest mothers this appears to have decreased between BC1 and BC2 (4% to 3% respectively), this difference is not statistically significant.

Table 7.4 Parental general health by maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1				
Excellent	15	21	23	26
Very good	38	36	41	34
Good	33	27	25	24
Fair	11	13	9	13
Poor	4	3	2	2
BC2				
Excellent	13	16	18	19
Very good	32	35	38	39
Good	38	31	31	29
Fair	13	15	10	10
Poor	3	3	2	2
Unweighted bases – BC1	*220*	*1555*	*2219*	*155*
Unweighted bases – BC2	*214*	*1956*	*2558*	*225*

Tested on category 'Excellent': differences by maternal age p< .01; differences by cohort p< .01; cohort education p=NS.*

Parents from the least deprived areas were more likely to report excellent health than parents from other areas. Differences by area deprivation are statistically significant in both cohorts (Table 7.5). For example, looking at BC2 parents, 20% of parents from the least deprived area reported excellent health compared with 14% of parents from the most deprived area. Conversely, if we look at poor health, we see that it was correlated to living in a more deprived area, a trend also evident in both cohorts. There has been no statistically significant change in the nature of the association between parental health and area deprivation between the cohorts.

Table 7.5 Parental general health by area deprivation (quintiles) and cohort

	1 Most deprived %	2 %	3 %	4 %	5 Least deprived %
BC1					
Excellent	16	19	22	25	27
Very good	34	36	41	40	42
Good	31	29	24	24	23
Fair	16	13	10	8	7
Poor	4	3	3	2	1
BC2					
Excellent	14	15	16	19	20
Very good	32	32	37	41	43
Good	32	36	33	30	27
Fair	16	15	12	9	9
Poor	5	2	2	1	1
Unweighted bases – BC1	*824*	*693*	*872*	*878*	*904*
Unweighted bases – BC2	*935*	*924*	*1018*	*1059*	*1006*

Tested on category 'Excellent': differences by area deprivation p< .001; differences by cohort p< .001; cohort education p=NS.*

7.2 Parental longstanding illness or disability

All parents were asked whether they had any health problems or disabilities that had lasted or were expected to last for more than a year. There has been no change in the prevalence of parental longstanding illness between the cohorts. Overall, 17% of parents in BC1 and 16% of parents in BC2 reported a longstanding illness or disability when the child was aged three, and this difference is not statistically significant (Table 7.6).

Table 7.6 Parental longstanding illness or disability by cohort

	BC1 %	BC2 %
Yes	17	16
No	83	84
Unweighted bases	*3908*	*4344*

Tested on 'Yes': differences by cohort p=NS

Parents who said they had a longstanding illness or disability were also asked about the extent to which this affected their ability to carry out day-to-day activities. It is important to note that whilst parents in BC1 and BC2 were asked the same question, they had different response categories to choose from. In BC1, parents could answer either 'Yes' or 'No',

whilst BC2 parents could answer 'Yes, a lot'; 'Yes, a little' or 'No'.[21] In BC1, 40% of parents said that their longstanding illness or disability affected them compared with 51% of parents in BC2 (9% a little, 42% a lot).

This increase in the impact of the longstanding illness /disability between BC1 and BC2 is likely to be due, at least in part, to the change in answer categories.

Table 7.7 Whether longstanding illness or disability affects parent in ability to carry out day-to-day activities by cohort

	BC1 %	BC2 %
Yes	40	-
Yes, a little	-	9
Yes, a lot	-	42
No	60	49
Unweighted bases	*661*	*741*

Tested on category No: differences by cohort p<.001

Table 7.8 shows the proportion of parents reporting a longstanding illness/disability by equivalised household income and cohort. Parents from lower income households were more likely to report a longstanding illness or disability than other parents and this trend was evident in both cohorts. Approximately one in ten parents in the highest income quintile (11% BC1, 12% BC2) reported a longstanding illness compared with over two in ten in the lowest income quintile (25% in BC1, 20% in BC2). Whilst there appears to have been a decline in the prevalence of longstanding illness amongst parents in the lowest income group there were no statistically significant differences by cohort nor in the nature of the relationship between household income and longstanding illness between the cohorts.

Table 7.8 % of parents with longstanding illness/disability by equivalised household income and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1	25	17	15	11	11
BC2	20	16	14	12	12
Unweighted bases – BC1	*772*	*802*	*758*	*857*	*719*
Unweighted bases – BC2	*968*	*774*	*808*	*774*	*1020*

Tested on category 'has longstanding illness': differences by equivalised income p< .001; differences by cohort p=NS; cohort equivalised income p=NS.*

21 Both BC1 and BC2 were asked the question: 'Does this condition or illness reduce your ability to carry out day-to-day activities?' BC1 had the response options 1) Yes 2) No, whilst BC2 parents had the following response options 1) Yes, a lot 2) Yes, a little 3) Not at all.

Table 7.9 shows that there are particular differences in the prevalence of a longstanding illness or disability according to parental level of education. The more educated the parent, the less likely he/she is to have a longstanding illness or disability. For both cohorts, around one in ten parents educated to degree level reported a longstanding illness or disability (13% in both BC1 and BC2) compared with three in ten of parents with no qualification (31% in BC1 and 30% in BC2). There were no differences in the relationship between parental level of education longstanding illness or disability between the cohorts.

Table 7.9 Parental longstanding illness/disability by parental level of education and cohort

	No qualifications	Lower Standard Grades or VQs or Other	Upper level SGs or Intermediate VQs	Higher grades and upper level VQs	Degree level academic and vocational qualifications
	%	%	%	%	%
BC1	31	18	17	17	13
BC2	30	19	15	15	13
Unweighted bases - BC1	*195*	*204*	*789*	*1371*	*1594*
Unweighted bases - BC2	*155*	*211*	*709*	*1420*	*2310*

Tested on category 'has longstanding illness': differences by education p< .001; differences by cohort p=NS; cohort equivalised income p=NS.*

Table 7.10 shows differences in the prevalence of longstanding illness and disability by maternal age at the birth of the cohort child. Whilst the data suggest that older mothers were more likely to report a longstanding illness or disability in both BC1 and BC2, differences across the age groups are not statistically significant in either cohort.

Table 7.10 Parental longstanding illness/disability by maternal age at child's birth and cohort

	Under 20 years old	20 to 29 years old	30 to 39 years old	40 or older
	%	%	%	%
BC1	15	17	16	18
BC2	10	16	16	16
Unweighted bases – BC1	*220*	*1555*	*2217*	*155*
Unweighted bases – BC2	*214*	*1956*	*2557*	*225*

Tested on category 'has longstanding illness': differences by maternal age p=NS; differences by cohort p=NS; cohort equivalised maternal age p=NS.*

Area deprivation is associated with a parent reporting a longstanding illness or disability (Table 7.11). Two in ten parents living in the most deprived areas (22% BC1; 20% BC2) had a longstanding illness or disability compared with one in ten (10% for both BC1 and BC2) in

the least deprived areas. The table shows that the trend has remained the same for both cohorts and there has been no change in the nature of the relationship between parental longstanding illness/disability and area deprivation between the cohorts.

Table 7.11 Parental longstanding illness/disability by area deprivation (quintiles) and cohort

	1 Most deprived	2	3	4	5 Least deprived
	%	%	%	%	%
BC1	22	18	16	14	10
BC2	20	17	15	14	10
Unweighted bases – BC1	*903*	*878*	*872*	*692*	*824*
Unweighted bases – BC2	*1006*	*1058*	*1018*	*924*	*935*

Tested on category 'has longstanding illness': differences by area deprivation p< .001; differences by cohort p=NS; cohort equivalised area deprivation p=NS.*

7.3 Parental wellbeing

Health-related quality of life was measured by the Medical Outcomes Study 12-Item Short Form (SF-12). This measure has been used at previous interviews in GUS and is also widely used on other large population surveys such as the Scottish Health Survey (SHeS). The SF-12 gives two summary scale scores: a physical component score (PCS) and a mental component score (MCS). The physical wellbeing component measures the extent to which the parent's physical health limits their ability to perform a range of daily activities (such as climbing stairs). The mental wellbeing component measures the parent's recent mood and energy levels and the extent to which emotional problems limit their ability to accomplish things. Both are measures of health related quality of life. Higher summary scale scores in both PCS and MCS are indicative of better health-related quality of life. However, as the results are based on the respondents' self-reports of their own physical and mental functioning they are subjective and may lead to differential reporting between respondents with an equivalent health status.

7.4 Parental physical wellbeing

The average mean score of physical wellbeing was 52.6 amongst BC1 parents and 52.3 amongst BC2 parents. This small difference was not statistically significant. As such, there has been no change in physical wellbeing mean score between the cohorts.

Table 7.12 Parental physical wellbeing mean score by cohort

	BC1	BC2
	%	%
Physical wellbeing mean score	52.6	52.3
Unweighted bases	4170	4972

Tested on mean physical wellbeing mean score p = NS

Table 7.13 shows mean physical wellbeing scores by equivalised household income. Physical wellbeing was related to household income with mean wellbeing score increasing as household income increased. This pattern was evident in both cohorts. For example in BC2, the mean physical wellbeing score amongst parents in the lowest income group was 51.1 compared with 53.7 amongst parents in the highest income group. The table shows that there has been no notable change in the nature of the relationship between physical wellbeing and household income between the cohorts.

Table 7.13 Physical wellbeing mean scores by equivalised household income quintile and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1	50.5	52.5	52.8	53.9	53.8
BC2	51.1	52.0	52.8	53.6	53.7
Unweighted bases – BC1	*773*	*802*	*759*	*857*	*718*
Unweighted bases – BC2	*967*	*773*	*809*	*774*	*1020*

Tested on mean score: differences by equivalised household income p< .001; differences by cohort p=NS; cohort equivalised household income p=NS.*

Table 7.14 Physical wellbeing mean scores by parental level of education and cohort

	No qualifications %	Lower Standard Grades or VQs or Other %	Upper level SGs or Intermediate VQs %	Higher grades and upper level VQs %	Degree level academic and vocational qualifications %
BC1	49.8	51.4	52.3	52.7	53.3
BC2	51.5	50.9	51.3	52.3	53.2
Unweighted bases – BC1	*195*	*204*	*799*	*1371*	*1594*
Unweighted bases – BC2	*154*	*209*	*709*	*1420*	*2311*

Tested on mean score: differences by education p< .001; differences by cohort p=NS; cohort education p=NS.*

Table 7.15 shows that there is no discernible pattern in physical wellbeing by maternal age. However, in both cohorts, mothers aged between 30 and 39 at the birth of their child scored the highest physical wellbeing mean score (53.1 in BC1 and 52.5 in BC2). The slight differences in scores between the cohorts were not statistically significant.

Table 7.15 Physical wellbeing mean scores maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1	51.8	52.1	53.1	52.3
BC2	52.3	52.3	52.5	52.1
Unweighted bases – BC1	*220*	*1555*	*2218*	*155*
Unweighted bases – BC2	*213*	*1955*	*2557*	*225*

Tested on mean score: differences by maternal age p< .01; differences by cohort p=NS; cohort education p=NS.*

Table 7.16 shows a linear relationship between area deprivation and physical wellbeing. Parents from the lowest area of deprivation reported the lowest mean scores of physical wellbeing. There has been no change in the nature of the relationship between area deprivation and parental physical wellbeing between the two cohorts.

Table 7.16 Parental Physical wellbeing mean scores by area deprivation (quintiles) and cohort

	1 Most deprived %	2 %	3 %	4 %	5 Least deprived %
BC1	51.2	52.1	53.1	53.2	53.6
BC2	51.2	51.8	52.5	53.1	53.4
Unweighted bases – BC1	*824*	*693*	*871*	*878*	*904*
Unweighted bases – BC2	*933*	*923*	*1018*	*1059*	*1006*

Tested on mean score: differences by area deprivation p< .001; differences by cohort p=NS; cohort area deprivation p=NS.*

7.5 Parental mental wellbeing

The average mean mental wellbeing score was 49.6 amongst BC1 parents. This had increased slightly to 50.8 amongst BC2. This change was statistically significant (Table 7.17).

Table 7.17 Parental mental wellbeing mean score by cohort

	BC1 %	BC2 %
Mental wellbeing mean score	49.6	50.8
Unweighted bases	*4170*	*4972*

Tested on mean wellbeing score; differences by cohort p<.001

Table 7.18 shows that there is an association between mental wellbeing and household income: as income increases so too does the mean mental wellbeing score. For example, in BC2 the mean mental wellbeing score amongst parents in the highest income quintile was 52.0 compared with a score of 50.6 among parents in the second income quintile and 49.1 amongst parents in the lowest income quintile. This relationship exists in both cohorts.

There has been a statistically significant increase in the mental wellbeing score of parents in all household income groups but particularly amongst those in the lowest income group. As a result, the difference in mean scores between those in the lowest income quintile and those in the highest income quintile has narrowed between BC1 and BC2. In BC1, the difference in mean score between those in the highest and lowest income quintile was 5.5 whilst for BC2 parents it was 2.9. These differences are statistically significant. Whilst this is an encouraging trend, it will be interesting to see if this pattern continues in future years as the children get older, or with future cohorts.

Table 7.18 Mental wellbeing mean score by equivalised household income (quintile) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1	46.4	49.3	50.2	51.1	51.9
BC2	49.1	50.6	51.4	51.5	52.0
Unweighted bases – BC1	*773*	*802*	*759*	*857*	*718*
Unweighted bases – BC2	*967*	*773*	*809*	*774*	*1020*

Tested on mean score: differences by equivalised household income p< .001; differences by cohort p< .001; cohort equivalised household income p <0.01*

Table 7.19 shows that mental wellbeing increased with level of education. In both cohorts, parents educated to degree level had the highest mental wellbeing scores (BC1 = 50.7 and BC2 = 51.4) and parents with no qualifications had the lowest scores (BC1 = 45.5) and (BC2 = 49.1). There has been a slight and statistically significant increase in mean mental wellbeing scores across all levels of parental education between BC1 and BC2. However, there is no statistically significant difference in the nature of the relationship between education and mental wellbeing between the cohorts.

Table 7.19 Mental wellbeing mean scores by parental level of education and cohort

	No qualifications %	Lower Standard Grades or VQs or Other %	Upper level SGs or Intermediate VQs %	Higher grades and upper level VQs %	Degree level academic and vocational qualifications %
BC1	45.5	47.5	48.6	50.1	50.7
BC2	49.1	49.4	50.3	50.8	51.4
Unweighted bases – BC1	*195*	*204*	*799*	*1371*	*1594*
Unweighted bases – BC2	*154*	*209*	*709*	*1420*	*2311*

Tested on mean score: differences by education p< .001; differences by cohort p< .001; cohort education p=NS.*

Table 7.20 shows mental wellbeing mean scores by maternal age at the birth of the cohort child. There was no particular relationship between mental wellbeing and age although as with physical wellbeing, mothers aged 30-39 years had higher mean scores of mental wellbeing for both BC1 (50.0) and BC2 (51.1) than mothers in all other age groups. At the other end, younger mothers had the lowest scores (BC1 = 48.0, BC2 = 49.7). The increase in mental wellbeing score between BC1 and BC2 affected all age groups of mothers and there has been no statistically significant change in the nature of this relationship between the cohorts.

Table 7.20 Mental wellbeing mean scores maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1	48.0	49.3	50.0	49.8
BC2	49.7	50.6	51.1	50.6
Unweighted bases – BC1	*220*	*1555*	*2218*	*155*
Unweighted bases – BC2	*213*	*1955*	*2557*	*225*

Tested on mean score: differences by maternal age p< .01; differences by cohort p< .001; cohort education p=NS.*

There was a linear relationship between area deprivation and mental wellbeing, as deprivation increases, mental wellbeing decreases (Table 7.21). This trend is evident in both cohorts. The increase in mean mental wellbeing scores between BC1 and BC2 has affected parents from all areas of deprivation. Furthermore, we can also see that there has been a narrowing of the gap between mean scores of mental wellbeing between parents from households in the lowest income quintile and parents in the highest income quintile between BC1 and BC2.

Table 7.21 Mental wellbeing mean scores by area deprivation (quintiles) and cohort

	1 Most deprived	2	3	4	5 Least deprived
	%	%	%	%	%
BC1	51.2	52.1	53.1	53.2	53.6
BC2	51.2	51.8	52.5	53.1	53.4
Unweighted bases – BC1	*824*	*693*	*871*	*878*	*904*
Unweighted bases – BC2	*933*	*923*	*1018*	*1059*	*1006*

Tested on mean score: differences by area deprivation p< .001; differences by cohort p< .001; cohort area deprivation p< .05*

7.6 Parental smoking habits

During the interview parents were asked if they currently smoked cigarettes. The comparison included here is simply on whether or not the parent smokes and not on number of cigarettes smoked or smoking in the household.

There has been a reduction in levels of smoking amongst parents between BC1 and BC2. In BC1, 28% of parents smoked. This figure had decreased to 24% in BC2 (see Table 7.22). This decrease is statistically significant. This reflects a wider trend showing a decline in smoking levels amongst the whole Scottish population over the same period[22].

Table 7.22 Proportion of parents who smoke by cohort

	BC1	BC2
	%	%
Parent smokes	28	24
Unweighted bases	*4171*	*4975*

Tested on whether parent smokes: differences by cohort: p<0.01

Smoking rates varied according to household income with parents from lower income households more likely to smoke than parents in higher income households (Table 7.23). Amongst BC1 parents, 47% in the lowest income group smoked compared with 11% in the highest income group. Although the overall decrease in smoking levels is seen in all income groups, proportionate decreases are higher among those in the higher income groups. For example, smoking levels amongst parents in the lowest income quintile has fallen from 47% in BC1 to 40% in BC2 and amongst those in the highest income quintile from 11% in BC1 to 7% in BC2. There has however, been no statistically significant change in the strength of the relationship between household income and smoking levels between the cohorts.

22 http://www.gov.scot/About/Performance/scotPerforms/indicator/smoking

Table 7.23 Parental smoking by equivalised household income (quintile) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1	47	34	25	19	11
BC2	40	31	22	14	7
Unweighted bases – BC1	*904*	*878*	*872*	*693*	*824*
Unweighted bases – BC2	*1006*	*1059*	*1018*	*924*	*935*

Tested whether parent smokes: differences by equivalised household income p< .001; differences by cohort p< .001; cohort equivalised household income p=NS.*

Table 7.24 shows that there is an association between smoking and parental education. Parents with higher qualifications were less likely to smoke than those with lower or no qualifications. For example, amongst BC1 parents, nearly 6 in 10 (59%) parents with no qualifications smoked compared with nearly one in ten (9%) parents educated to degree level. This trend is also seen in BC2 parents where 53% of parents with no qualifications smoked compared with 8% of parents educated to degree level. Differences by cohort are not statistically significant.

Table 7.24 Parental smoking by parental level of education and cohort

	No qualifications %	Lower Standard Grades or VQs or Other %	Upper level SGs or Intermediate VQs %	Higher grades and upper level VQs %	Degree level academic and vocational qualifications %
BC1	59	49	47	26	9
BC2	53	50	40	26	8
Unweighted bases – BC1	*195*	*204*	*799*	*1371*	*1595*
Unweighted bases – BC2	*155*	*211*	*709*	*1420*	*2311*

Tested whether parent smokes: differences by education p< .001; differences by cohort p< .05; cohort education p=NS.*

Levels of parental smoking are related to maternal age (Table 7.25). Younger mothers were more likely to smoke than older mothers. In BC1, 59% of mothers aged 20 or under smoked compared with 33% of mothers aged 20-29 years old, 19% of mothers aged 30-39 years old and 14% of mothers aged 40 or older. The difference between smoking rates amongst the youngest and oldest mothers has reduced between cohorts mainly as a result of a considerable decline in the proportion of mothers aged under 20 smoking (59% in BC1 to 42% in BC2) relative to other age groups. Nevertheless, the considerable social gradient is such that there has therefore been no statistically significant change in the relationship between smoking and age between the cohorts.

Table 7.25 Parental smoking by maternal age at child's birth and cohort

	Under 20 years old %	20 to 29 years old %	30 to 39 years old %	40 or older %
BC1	48.0	49.3	50.0	49.8
BC2	49.7	50.6	51.1	50.6
Unweighted bases – BC1	*220*	*1555*	*2218*	*155*
Unweighted bases – BC2	*213*	*1955*	*2557*	*225*

Tested whether parent smokes: differences by maternal age p< .001; differences by cohort p< .05; cohort maternal age p=NS.*

Table 7.26 shows levels of parenting smoking by area deprivation. Smoking was associated with deprivation in both cohorts. Parents in more deprived areas were more likely to smoke than those in less deprived areas. For example, in BC1 52% of parents living in areas in the most deprived are quintile smoked compared with 9% of parents in the least deprived area quintile. As we know levels of smoking amongst parents of three years olds has dropped between 2007/08 and 2013, with slightly greater reductions amongst parents living in the more deprived areas. However, there has been no notable nor statistically significant change in the relationship between area deprivation and smoking between the cohorts.

Table 7.26 Parental smoking by area deprivation (quintiles) and cohort

	1 Most deprived %	2 %	3 %	4 %	5 Least deprived %
BC1	52	33	23	13	9
BC2	43	27	16	10	7
Unweighted bases – BC1	*773*	*802*	*759*	*857*	*719*
Unweighted bases – BC2	*968*	*774*	*809*	*774*	*1020*

Tested whether parent smokes: differences by area deprivation p< .001; differences by cohort p< .001; cohort maternal age p=NS.*

chapter 8

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chapter 9

APPENDICES

APPENDIX A: Details of key socio-economic variables

Household level equivalised income

In GUS, overall income is measured at household level before tax. At each interview, parents are asked to provide information about the amount of income they receive. This covers all sources of income including earnings, benefits, tax credits and interest from savings. Amounts can be given as either weekly, monthly or annual amounts which are adjusted to produce a single annual figure.

These figures are then 'equivalised' to reflect differences in household size and composition, as these factors affect the income level required to attain a particular living standard. For example, a couple with dependent children will need a higher income than a single person with no children to attain the same material living standards. The equivalised household income enables comparison between households of different size and composition. Furthermore, it also enables comparison over time and, in the case of GUS, between the two cohorts.

After equivalisation, the sample is split into five, equally-sized groups – or quintiles – according to income distribution. Each group thus contains around 20% of families. However, because the income data on GUS is collected in a series of ranges (e.g. £10,400 to £15,599, £15,600 to £20,799 and so on) rather than as a scale of specific, individual values (e.g. £12,457) the split can be slightly imprecise and some groups may contain slightly more or less than 20%. It is also important to note that the groups are split relative to the spread of income for that cohort and sweep of data collection rather than in reference to a fixed cut-off point. As such, the cut-off point denoting the maximum annual income of the poorest 20% of families in BC1 will be different to the cut-off point for the equivalent group in BC2. Nevertheless, in each cohort the lowest and highest quintiles will represent the richest and poorest 20% of families with a child aged 3.

Area deprivation (SIMD)

Area deprivation is measured using the Scottish Index of Multiple Deprivation (SIMD) which identifies small area concentrations of multiple deprivation across Scotland. It is based on 37 indicators in the seven individual domains of Current Income, Employment, Health, Education Skills and Training, Geographic Access to Services (including public transport travel times for the first time), Housing and a new Crime Domain. SIMD is presented at data zone level, enabling small pockets of deprivation to be identified. The data zones, which have a median population size of 769, are ranked from most deprived (1) to least deprived (6,505) on the overall SIMD and on each of the individual domains. The result is a comprehensive picture of relative area deprivation across Scotland.

In this report, the data zones are grouped into quintiles. Quintiles are percentiles which divide a distribution into fifths, i.e., the 20th, 40th, 60th, and 80th percentiles. Those respondents

whose postcode falls into the first quintile are said to live in one of the 20% least deprived areas in Scotland. Those whose postcode falls into the fifth quintile are said to live in one of the 20% most deprived areas in Scotland.

Further details on SIMD can be found on the Scottish Government Website

http://www.gov.scot/Topics/Statistics/SIMD/BackgroundMethodology

APPENDIX B: Notes on interpreting the data

Interpreting the cohort comparison tables

Many of the results in the report are presented as nested cross-tabulations. These are cross-tabulations of two variables (e.g. whether child has a longstanding illness by equivalised household income) nested by a third variable: cohort. This approach allows that all of the information of interest is produced as a single table and also permits a statistical test to explore whether the relationship between the two variables has changed between the cohorts.

Statistical significance is reported as a p-value of either <.05, <.01, <.001 or NS. These indicate statistical significance at the 95%, 99% and 99.9% levels or non-significance. For each table, three p-values are given, as shown in the example below.

Table 4.8 Child's longstanding illnesses or disabilities, by equivalised household income (quintiles) and cohort

	Lowest quintile %	2nd quintile %	3rd quintile %	4th quintile %	Highest quintile %
BC1					
No	83	86	85	87	87
Yes	17	14	15	13	13
BC2					
No	81	82	82	85	86
Yes	19	18	18	15	14
Unweighted bases – BC1	*783*	*803*	*761*	*858*	*721*
Unweighted bases – BC2	*981*	*778*	*814*	*776*	*1021*

*Tested on 'yes': differences by income – p < .01; differences by cohort – p < .01; cohort*income – NS.*

In this example, the first p-value indicates whether differences by income are statistically significant. This test is based on combined values for both cohorts (not shown in the table) and not on the individual cohort figures. As such, it does not tell us whether differences by income are statistically significant within each cohort. Furthermore, the test is run across all categories and does not test for differences between each individual category and the next, e.g. between the 4th quintile and highest quintile. Separate p values for each cohort are not reported. These would not provide an insight into any statistically significant differences between the cohorts. The third p-value – described below – is used for this purpose.

The second p-value indicates whether the outcome being measured differs by cohort in a way that is statistically significant. In the example, this indicates whether there was any statistically significant difference in longstanding illness/disability across BC1 and BC2. This test is based on overall values of the row variable for the cohort (not shown in the table). It does not compare the individual values on the row variable for each income subgroup by cohort. For example, the p-value does not indicate that the difference between the 17% of children in the lowest income quintile of BC1 with a longstanding illness is statistically significantly different from the 19% of children in the same group in BC2.

The third p-value indicates whether the relationship between the two variables is statistically significantly different between the two cohorts. In this example, using interaction analyses, the test assesses the association between household income and longstanding illness in BC1 and then BC2 and compares the association found in each cohort. A p-value of <.05 indicates the association is statistically significantly different. Where this p-value is <.05, the figures in the table can be used to interpret the change. For example, it may indicate a strengthening of the association, a weakening of the association or some other change – such as moving from a positive relationship (as income increases likelihood of having a longstanding illness also increase) to a negative relationship (as income increases likelihood of having a longstanding illness decreases). In the example above, the interaction p-value is NS. This indicates that there is no statistically significant change in the relationship between income and longstanding illness between the two cohorts. Looking at the results, it can be seen that in both cohorts lower income is associated with a higher likelihood of longstanding illness. Whilst prevalence has changed in some individual income sub-groups (e.g. increasing from 14% to 18% in the 2nd income quintile) these changes have not been sufficient to alter the overall relationship between the two variables.

Multivariable regression analysis

Multivariable regression analysis was used where further investigation was required of whether a change had occurred between BC1 and BC2.

This type of analysis allows the examination of the relationships between an outcome variable (e.g. frequent parent-child reading or language ability score) and multiple explanatory variables (e.g. parental education, parental employment status, child gender, cohort) whilst controlling for the inter-relationships between each of the explanatory variables. This means it is possible to identify an independent relationship between any single explanatory variable and the outcome variable.

'Interactions' were included in the multivariable models to consider whether the relationship between, for example household income and longstanding illness was different in each cohort. In this example, where longstanding illness is the outcome variable, the interaction would be fitted between household income and cohort. Where an interaction is statistically significant this indicates that the relationship between the explanatory variable (e.g. household income) and the outcome variable (e.g. longstanding illness) is different in each cohort.

Binary logistic regression analysis was used. The results are presented (appendix C) as odds ratios, all of which have a significance value attached. Logistic regression compares the odds of a reference category (shown in the tables) with that of the other categories. An odds ratio of greater than one indicates that the group in question is more likely to demonstrate this characteristic than is the chosen reference category, an odds ratio of less than one means they are less likely. For example, Table C.2 contains the results of the regression model seeking to identify factors related to the child having had accidents. In the 'OR' column, the category of BC2 returns an odds ratio of 2.25. This indicates that the odds of children in BC2 having had an accident are 2.25 times greater than they are for children in BC1 (the reference category).

Note that an odds ratio cannot be interpreted in the same way as a co-efficient. An odds ratio of 2 does not mean 'two times as likely' but instead means 'the odds are two times higher'. To understand an odds ratio we first need to describe the meaning of odds. The definition of odds is similar but significantly different to that of probability. This is best explained in the form of an example. If 200 individuals out of a population of 1000 experienced persistent poverty, the probability (p) of experiencing persistent poverty is 200/1000, thus p=0.2. The probability of not experiencing persistent poverty is therefore 1-p = 0.8. The odds of experiencing persistent poverty are calculated as the quotient of these two mutually exclusive events. So, the odds in favour of experiencing persistent poverty to not experiencing persistent poverty, is therefore 0.2/0.8=0.25. Suppose that 150 out of 300 people living in social rented housing experience persistent poverty compared to 50 out of 150 who live in owner occupied housing. The odds of a person living in social rented housing of experiencing persistent poverty are 0.5/0.5=1.0. The odds of a person living in owner occupied housing of experiencing persistent poverty is 0.33/0.66=0.5. The odds ratio of experiencing persistent poverty is the ratio of these odds, 1.0/0.5=2.0. Thus the odds of experiencing persistent poverty are twice as high among people who live in social rented housing (compared to people who live in owner occupied housing – the 'reference category'). Note that this is not the same as being 'twice as likely' to experience the outcome.

Categories which have a p value of greater than 0.05 are not considered to be statistically significant.

APPENDIX C: Regression model outputs

Table C.1 Factors predicting child having very good health – both cohorts

	n (weighted)	%	P	OR
Cohort			NS	
BC1/children aged 3 in 2007/08 (ref)	4193	46%		-
BC2/children aged 3 in 2013	5019	55%		0.983
Equivalised household income			***	
Lowest income quintile *Note: values differ by cohort (ref)	2134	23%		-
2nd quintile	1639	18%		1.214
3rd quintile	1509	16%		1.296
4th quintile	1465	16%		1.357
Highest income quintile	1504	16%		1.553
Income refused or missing	961	10%		0.936
Interactions				
Cohort*Income			NS	
Total	9212			

Table C.2 Factors predicting child having had accidents – both cohorts

	n (weighted)	%	p	OR
Cohort			NS	
BC1/children aged 3 in 2007/08 (ref)	4185	46%		-
BC2/children aged 3 in 2013	4830	54%		2.252
Parental level of education			**	
No qualifications (ref)	500	6%		-
Lower SGs or VQs or 'Other' quals	530	6%		0.829
Upper level SGs or Intmed VQs	1733	19%		1.458
Higher Grades or Upper level VQs	2808	31%		1.478
Degree level or VQs (ref)	3445	38%		1.242
Interactions				
Cohort*Parental level of education			*	
Total	9015			

Table C.3 Factors predicting child having had accidents – BC1 and BC2

	BC1				BC2			
	n (weighted)	%	p	OR	n (weighted)	%	p	OR
Parental level of education			NS				**	
No qualifications (ref)	264	6%		-	236	5%		-
Lower SGs or VQs or 'Other' quals	253	6%		0.365	276	6%		0.829
Upper level SGs or Intmed VQs	893	21%		0.305	839	17%		1.458
Higher Grades or Upper level VQs	1355	32%		0.176	1453	30%		1.478
Degree level or VQs	1419	34%		0.275	2026	42%		1.242
Total	4185				4830			

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