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## Health inequalities in the early years: evidence from the Growing Up in Scotland study (GUS)

Briefing Paper for the Scottish Parliament  
Health and Sport Committee



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The Growing Up in Scotland study (GUS) is a major longitudinal research project that tracks the lives of several cohorts of Scottish children through the early years and beyond. The study is funded by the Scottish Government and carried out by ScotCen Social Research. GUS provides crucial evidence for the long-term monitoring and evaluation of policies for children, with a specific focus on the early years. It collects a wide range of information about children and their families. The main areas covered include education, childcare, parenting, health and social inclusion.

#### Key points from this Briefing Paper:

- Young children in Scotland living in disadvantaged circumstances experience considerable inequality both in terms of their exposure to the risk factors for poor health **and** their early health outcomes. During their first 4 years, the inequality in exposure to risk is greater than that evident for actual health outcomes.
- Disadvantaged households experience a double burden in their experience of health inequalities with children and adults within them being at greater risk of negative outcomes. Reducing health inequalities amongst children therefore requires action to address the social and health inequalities experienced by their parents, wider families and communities.
- While there is much that can be achieved through the health service, evidence from GUS suggests that many of the actions required to reduce health inequalities in the early years lie outwith the remit of health services and other service providers.
- GUS findings suggest that it is difficult to counter the very powerful structural and economic influences on children's lives. However, some factors contributing to 'resilience' (the avoidance of poorer early health outcomes amongst those experiencing disadvantage) can be identified. These include factors at the individual, household and community level.
- By exploring the relationships between parenting and children's health it is clear that the health benefits of better parenting appear greatest for those families experiencing the highest levels of family adversity. This suggests that policies to support and improve parenting may contribute to a reduction in health inequalities. However, GUS also finds that families experiencing disadvantage are less likely than others to access services and to seek support and advice from professionals. While there is a range of parenting programmes being delivered across Scotland, overall programmes to support parenting are likely to provide only a partial solution to reducing inequalities in health.

# 1. The character of health inequalities in the early years

A key theme emerging from a range of research and policy documents from across the UK and further afield is that inequalities in health, and other outcomes, often emerge in the very earliest stages of life and persist throughout subsequent life stages. GUS seeks to add to this body of research, with the aim of providing new information to inform policy development in Scotland.

GUS is tracking the lives of two main groups of children – 5,000 born in 2004/05 and 6,000 born in 2010/11. Children and their families from all parts of Scotland are taking part in the study. Participants were selected at random from Child Benefit records, and together they are representative of all children in Scotland of these ages. Data is collected through an annual interview with families, taking place in their own homes and carried out by trained interviewers.

GUS adds to the data collected and reported by the NHS in Scotland firstly, by being able to link health outcomes with other circumstances and experiences. Secondly, the 'longitudinal' nature of the study allows researchers to examine in detail how early circumstances and experiences are associated with later outcomes.

A broad interpretation of health has been applied in GUS analysis, drawing on the World Health Organisation's founding definition of health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"<sup>1</sup>. Our definition of health inequalities is based on that used in the report of the Scottish Government's Ministerial Task Force on Health Inequalities, *Equally Well* which defined health inequalities in the early years in two ways. Firstly, inequalities can relate to negative outcomes such as low birth weight or other indicators of a failure to thrive. Secondly, it can mean inequalities in exposure to risk factors that increase the likelihood of, or perpetuate, poor health outcomes. These include poor diet, lack of physical activity, parental drug or alcohol misuse, being in care, living in a poor physical environment and family poverty.

Health inequality in GUS is defined as the unequal socio-economic patterning of *outcomes* and *risk factors* which disadvantage less affluent children. *Outcome* measures include reported general health; experience of illness and long-term health problems; accidents; weight (Body Mass Index); cognitive ability; and social, emotional and behavioural development. *Risk factors* include exposure to smoking at home, maternal health (including mental health), children's physical activity levels and their diet (including breastfeeding).

GUS collects a range of measures which can be used to explore differences in health for children in different socio-economic circumstances. The main socio-economic measures used have included equivalised household income, parents' highest level of education, socio-economic classification, employment status, area deprivation, and housing tenure.

Analysis has usually compared the proportion of children in each group who experienced the particular health outcome or risk factor. However, more complex analysis has also been used to identify factors that appear to be associated with positive outcomes for children from disadvantaged backgrounds – i.e. to examine 'resilience'.

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<sup>1</sup> See: <http://www.who.int/about/definition/en/print.html>

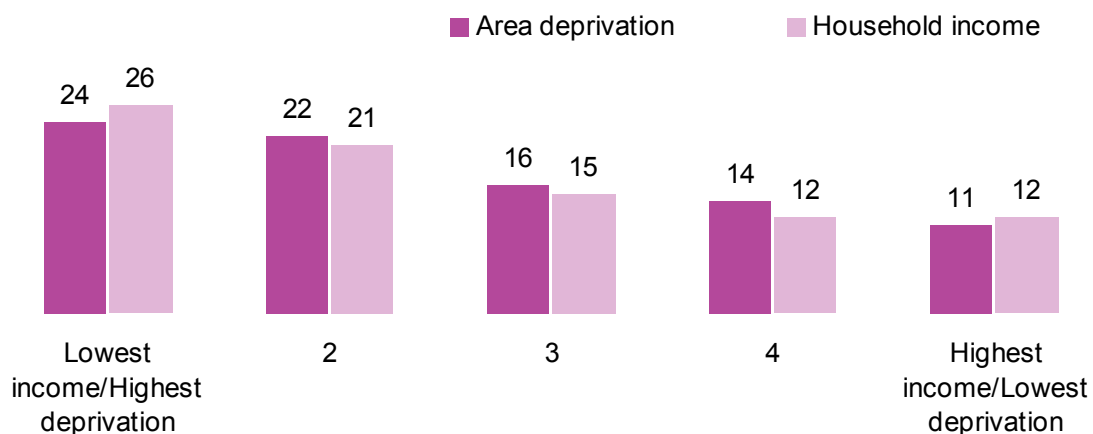
## 1.1 Inequalities in health outcomes

### 1.1.1 Physical health

In their analysis of health inequalities over the first four years of life, Bromley et al<sup>2</sup> found that children living in the most deprived areas, those with the lowest income households or in routine and semi-routine households had worse health outcomes on a range of physical health measures. These ranged from very early measures of health collected at a single time point – such as birth weight, or time spent in a Special Care Baby Unit or Neo-natal unit after birth – to broader, repeated measures such as parent-assessed general health, long-term health conditions and accidents.

For example, as shown in Figure 1, children in more disadvantaged circumstances – whether measured according to household income or area deprivation – were significantly more likely than their more advantaged peers to have been reported as having fair, bad or very bad health during their first four years of life.

**Figure 1** Fair, bad or very bad health at least once between birth and four years by equivalised household income quintile and area deprivation quintile



### 1.1.2 Overweight and obesity

Direct measures of the children's height and weight were taken at ages four and six years. These were used to derive their body mass index (BMI) which was compared with standard growth charts for children of this age to assess whether they were underweight, normal weight, overweight or obese.

Analysis of variations in the proportion of children who were overweight or obese at age six<sup>3</sup> found that children whose mothers had a lower level of education (below NVQ level 4), were in the bottom 40% of average household incomes, and those who lived in areas in the two most deprived quintiles were at greater risk of being overweight or obese.

<sup>2</sup> Bromley, C. and Cunningham-Burley, S. (2010) [Growing Up in Scotland: Health inequalities in the early years](#) Edinburgh: Scottish Government

<sup>3</sup> Parkes, A., Sweeting, H. and Wight, D. (2012) [Growing Up in Scotland: Overweight, obesity and activity](#) Edinburgh: Scottish Government

The factors associated with children being overweight or obese are: mother's overweight or obesity, frequent snacking on sweets or crisps as a toddler, skipping breakfast, not eating the main meal in a dining area of the home, low parental supervision, poor maternal physical health and low 'child friendliness' of the local area (as perceived by parents). This suggests that measures to reduce obesity should include 'whole family' approaches to healthy living and measures to improve social and physical environments.

### 1.1.3 Cognitive ability

Children were asked to complete two cognitive assessments each at ages 3 and 5. These assessments measured their ability in relation to expressive vocabulary (knowledge of names) and non-verbal reasoning (problem solving ability).

The analysis of cognitive ability<sup>4</sup> demonstrates that children from more advantaged circumstances significantly outperform those from disadvantaged circumstances, particularly in relation to differences in parental level of education. At the time they entered school, children whose parents had no qualifications were found to have vocabulary ability around 18 months behind children of degree-educated parents. The longitudinal analysis shows that the ability gap between more and less advantaged children is already apparent at age 3 and largely persists during the pre-school period.

### 1.1.4 Social, emotional and behavioural development

GUS analysis shows<sup>5</sup> that around the time they enter school, around 1 in 10 Scottish children have moderate or severe social, emotional or behavioural difficulties. This rises to around 1 in 4 in relation to difficulties with conduct.

Children in lower income households and were more likely than those in higher income households to exhibit more negative social, emotional and behavioural characteristics and to show more negative change in social development during the pre-school period.

## 1.2 Exposure to risk factors

GUS research has not only shown that children in more disadvantaged circumstances tend to have poorer health outcomes than their more advantaged counterparts, but that they also have higher exposure to *risks* for those outcomes. Indeed, often the inequality in exposure to risk is higher than that evident for outcomes. In some cases, it is the increased exposure to these risks which fully explain the socio-economic inequalities in the outcomes themselves.

In her analysis of the period from birth to age four, Bromley found that children living in the most deprived areas were significantly more likely to have had a mother who smoked (including during pregnancy) and who had poorer physical or mental health. Those children were also less likely to have been breastfed and to eat fruit and vegetables, and more likely to eat unhealthy snacks and have lower levels of physical activity.

Similarly, in relation to overweight and obesity, Parkes *et al* found that after allowing for other confounding factors the effect of mothers' lower education level was reduced. That is, the findings suggest that greater overweight and obesity amongst children whose

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<sup>4</sup> See: Bradshaw, P. (2011) [Growing Up in Scotland: Changes in child cognitive ability in the pre-school years](#) Edinburgh: Scottish Government; and Bromley, C. (2009) [Growing Up in Scotland: The impact of children's early activities on cognitive development](#) Edinburgh: Scottish Government

<sup>5</sup> Bradshaw, P. and Tipping, S. (2010) [Growing Up in Scotland: Children's social, emotional and behavioural characteristics at entry to primary school](#) Edinburgh: Scottish Government

mothers had lower educational qualifications was largely explained by lower rates of breastfeeding, earlier introduction of solids, and greater likelihood of snacking on sweets and crisps as a toddler amongst children in this group. Furthermore, children who were exposed to these risks - irrespective of their mother's level of education - had a greater chance of being overweight or obese at age six.

Analysis by Chanfreau *et al*<sup>6</sup> focused on identifying key events that happen during childhood and examined whether families who experience these events are more likely to face known drivers of negative child outcomes.

The research looked at four significant events: parental separation; moving home; parental job loss and the onset of persistent maternal health problems. It explored the association between these events and factors which other research, including GUS, has shown to be related to poor child outcomes - income poverty, poor maternal mental health, chaos in the home environment and quality of parent-child relationship.

The research found that disadvantaged children were more likely to experience the events which led to the circumstances which subsequently drive negative outcomes thus giving some insight into the reasons behind the greater level of negative health outcomes amongst this group. For example, parental separation – more prevalent amongst families on relative low income – was associated with poorer maternal mental health, a factor associated with negative child health outcomes.

### 1.3 Resilience

In many cases, GUS analysis has gone beyond simply quantifying the extent of child health inequalities in the early years, seeking to identify factors which are associated with disadvantaged children avoiding negative outcomes, that is, resilience. On the whole, findings suggest that it is difficult to counter the very powerful structural and economic influences on children's lives. However, there are some suggestions of behaviours and experiences which appear to benefit disadvantaged children.

In relation to her broad analysis of health inequalities in the early years, Bromley found that, amongst children who were disadvantaged, those who experienced the following had a greater chance of avoiding negative health outcomes:

- Mother without long-term health problems
- Living in a household where at least one adult was in employment
- An enriching home-learning environment (child experiences a greater level of daily activities such as reading stories, singing nursery rhymes, painting/drawing)
- A mother who was older (35 or older)
- More positive attitudes to seeking support
- Satisfaction with local facilities

The significance of having an enriching home-learning environment has repeatedly been found to be an important factor in influencing children's early cognitive outcomes, including for disadvantaged children. Improved vocabulary ability between age 3 and 5, specifically amongst children from more disadvantaged groups, was also found to be associated with a greater consistency of parenting, stronger parent-child attachment, attendance at ante-natal classes and having been breastfed. Having better, earlier communication skills (e.g. at age 22 months) was also important.

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<sup>6</sup> Chanfreau, J., Barnes, M., Tomaszewski, W., Philo, D., Hall, J. and Tipping, S. (2011) [\*Growing Up in Scotland: Change in early childhood and the impact of significant life events\*](#) Edinburgh: Scottish Government

One of our analysis projects<sup>7</sup> has explored in detail the relationship between parenting and child health outcomes. The analysis revealed that both child health and parenting skills varied considerably with levels of family adversity. In addition, the nature of the relationship suggests that some of the differences in child health outcomes observed between children who experience different levels of family adversity occur because of the related differences in parenting. The implication is, therefore, that changing parenting behaviours, particularly amongst more disadvantaged groups, may improve health outcomes for children within that group, but also that measures to support parenting provide only a partial solution to reducing health inequalities.

## 2. Barriers and challenges

A central theme across GUS findings has been the variation in the ways that formal support services are used by families with different characteristics. Mothers experiencing disadvantage are less likely than their more advantaged peers to attend antenatal classes, parenting classes and parent and baby/ toddler groups. Parents whom service providers and policymakers often most want to reach are those most reluctant to engage with services<sup>8</sup>. Younger parents, lone parents, parents with lower levels of income and education are generally less comfortable engaging with formal support services (like health visitors) and more likely to perceive a stigma attached to seeking formal support. These same parents are more likely to say that they dislike the 'group format' of some programmes and would prefer to receive information, advice and support on a one-to-one basis<sup>9</sup>.

GUS finds that over two-thirds (70%) of parents with a 10 month old baby had not attended any parenting class or programme over the past year. The most commonly attended programme or class is baby massage, attended by 24% of all parents. Over half (54%) of parents stated that it was either not at all or not very likely that they would participate in a parenting programme in the future. This suggests that support for parents to reduce health inequalities in the early years might be best delivered by universal services known and trusted by parents. Despite reluctance from some groups to approach professionals like health visitors for advice and support, satisfaction with the services provided by health visitors in Scotland is very high. The majority of parents (83%) reported that their health visitor was either very good or fairly good at providing helpful advice and 91% said the same in relation to listening to them<sup>10</sup>.

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<sup>7</sup> Parkes et al (2011) [Growing Up in Scotland: Parenting and children's health](#) Edinburgh: Scottish Government

<sup>8</sup> Mabelis, J & Marryat, L (2011) [Growing Up in Scotland: Parental service use and informal networks in the early years](#), Edinburgh: Scottish Government.

<sup>9</sup> Bradshaw et al (2013) [Growing Up in Scotland: Birth Cohort 2 – results from the first year](#), Edinburgh: Scottish Government.

<sup>10</sup> Bradshaw et al (2013) [Growing Up in Scotland: Birth Cohort 2 – results from the first year](#), Edinburgh: Scottish Government.

### 3. Recent progress

The research design of GUS enables us to monitor change between two birth cohorts. We are able to compare the circumstances, characteristics and experiences of children born in 2004/05<sup>11</sup> with those of children born in 2010/11<sup>12</sup>. There has been a significant amount of early years policy development activity during this period, including the three social policy frameworks, the *Early Years Framework*, *Equally Well* and *Achieving our Potential* and more recently, the Early Years Collaborative<sup>13</sup>.

Comparing data collected from both cohorts when children were 10 months old shows some improvement in the rates of alcohol consumption during pregnancy. 80% of women having babies in 2010/11 reported not drinking any alcohol during their pregnancy, compared with 74% of women who had babies in 2004/05. It is notable that mothers educated to degree level and those in higher income households were more likely than mothers with lower qualifications and in lower income households to have consumed alcohol during their pregnancy. For example, 31% of mothers with a degree level qualification reported having some alcohol compared with 12% of those with no qualifications. In terms of changes between 2004/05 and 2010/11 amongst different socio-demographic groups, alcohol consumption during pregnancy declined for all groups but the reduction was most apparent amongst older mothers (over 40 at the time of the child's birth) and amongst mothers with lower incomes.

Overall rates for smoking during pregnancy and for breastfeeding have remained stubbornly static. In relation to smoking, higher rates amongst more disadvantaged parents remain and the difference between them and more advantaged parents remain. For the younger birth cohort, 73% of all mothers said they did not smoke at all during pregnancy. 87% of women educated to degree level did not smoke during pregnancy, compared with 40% of mothers with no qualifications. However in relation to breastfeeding, with caution we can conclude from GUS data that there have been some improvements amongst more disadvantaged groups, indicating a decrease in inequality on this measure. For example, Figure 2 below shows that while the stark differences in breastfeeding initiation rates amongst different groups of mothers remain, there has been a significant increase in the proportion of mothers in the lowest income group initiating breastfeeding. In addition, breastfeeding rates amongst mothers with no qualifications have increased from 30% to 40% while the rates amongst degree educated mothers remained static at around 86%. As such, the gap between advantaged and disadvantaged mothers and babies has narrowed.

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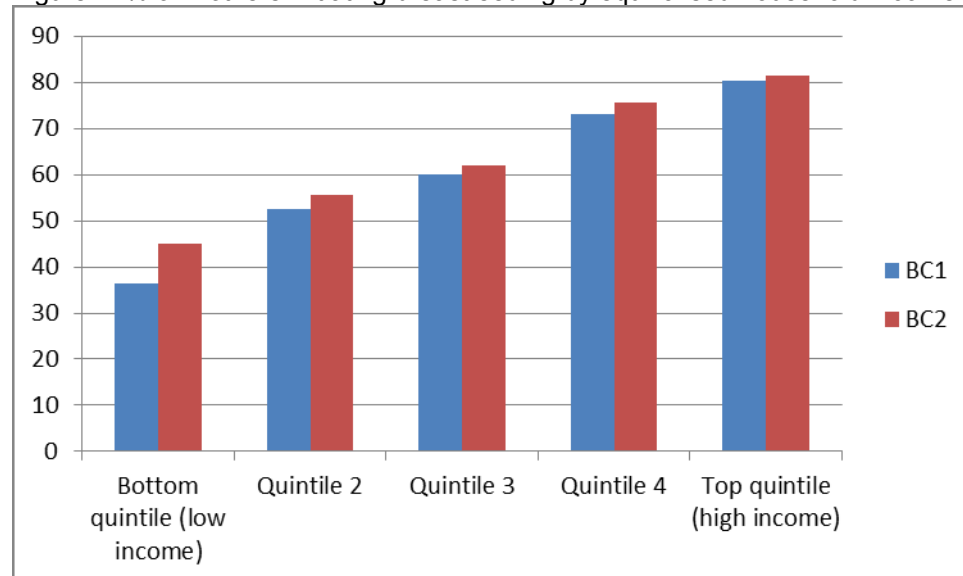
<sup>11</sup> Birth Cohort 1 or 'BC1'

<sup>12</sup> Birth Cohort 2 or 'BC2'

<sup>13</sup> For more information about how GUS relates to the policy landscape in Scotland please see Chapter 1 – Introduction of Bradshaw, P et al (2013) [Growing Up in Scotland: Birth Cohort 2 Results from the first year](#)



Figure 2: % of mothers initiating breastfeeding by equivalised household income



Between the two GUS birth cohorts, recommendations on when to introduce solid foods to babies (weaning) changed from between 4 and 6 months to 6 months or older. The data highlights that, in line with new advice, babies born during 2010/11 were on average being weaned later than those born 6 years earlier. Fewer babies started solids as early as 4 months (40% in BC2 compared with 59% in BC1) and as early as 5 months (69% in BC2 compared with 81% in BC1). This means that more parents have waited until 6 months to introduce their baby to solid foods.

In conclusion, GUS demonstrates that inequalities of health in the early years are associated with inequality at later stages, and experiencing poorer health in early childhood is associated with poorer outcomes later. As the children in GUS grow older, we will continue to examine the relationship between early health and later health and other related outcomes, as well as exploring whether and how the shape of inequality changes between the two cohorts.

## **Links to GUS Research Summaries**

[Health inequalities in the early years](#)

[Key early years indicators on pregnancy and birth](#)

[Infant feeding: breastfeeding and weaning](#)

[Parenting and children's health](#)

[Overweight, obesity and activity](#)

[Parental service use and informal networks in the early years](#)

[Change in early childhood and the impact of significant events](#)

[Children's social, emotional and behavioural characteristics at entry to primary school](#)

[The circumstances of persistently poor children](#)

[Maternal mental health and its impact on child behaviour and development](#)

All research reports and summaries available from GUS website/ publications

[www.growingupinScotland.org.uk](http://www.growingupinScotland.org.uk)