4. Child Poverty in Scotland:
health impact and health inequalities

NHS Health Scotland

This resource may also be made available on request in the following formats:

0131 314 5300

nhs.healthscotland-alternativeformats@nhs.net

Published by NHS Health Scotland

1 South Gyle Crescent
Edinburgh EH12 9EB

NHS Health Scotland is a WHO Collaborating Centre for Health Promotion and Public Health Development.

Key messages

- Children and families living in poverty suffer greater health and social inequalities than their better-off peers.
- The negative impacts of poverty on children start before birth and accumulate across the life course.
- Poverty has negative impacts on children's health, social, emotional and cognitive development, behaviour and educational outcomes.
- Poverty puts an additional strain on families, which can lead to parental mental health and relationship problems, financial problems and substance misuse. This can have a negative impact on parenting behaviours, which in turn impact on children's outcomes.
- Disadvantaged adults may have an increased risk of their own children experiencing poverty.

Introduction

Children and families living and growing up in poverty and low-income households experience many disadvantages which can have negative health and social consequences throughout their life. This can lead to children who experience poverty having poorer health, developmental and educational outcomes than their more affluent peers, creating inequalities.[1]

A number of key drivers of child poverty have been associated with adverse impacts on children's – and adults' – health outcomes (see briefing 3 – Child Poverty in Scotland: the national and local drivers). Many of these are out with the control of families and individuals, such as the availability of well-paid and flexible work, availability and accessibility of adequate social security, benefits, childcare, food, fuel and housing.

However, the lack of money (or low income) has been shown to have the strongest impact on children's cognitive, social-behavioural, educational attainment and health outcomes, independent of other factors such as parents' education.[2]

This briefing provides an overview of how poverty can impact on children's health, education and development, and how this contributes to inequalities in Scotland.

Poverty and child health

- Children living and growing up in poverty have worse health outcomes than their more affluent peers.
- Children born into poverty are more likely to experience a wide range of health problems – including poor nutrition, chronic disease and mental health problems – than those born into affluent families.

There is good evidence that children living and growing up in poverty have worse health outcomes than their more affluent peers.[3,4,5,6]

There are several pathways or mechanisms which can lead to poorer health outcomes in children (as well as adulthood) from living in poverty. Most identify key aspects such as limited money for resources, stress of living in poverty, unhealthy lifestyles and poorer education and employment.[2,7] The accumulation of some or all of these factors over time can impact on child development and health outcomes.

In a recent evidence review update, two key pathways have been proposed as to how poverty impacts on child health:[2]

- **Investment model** – via the direct impact of low income on a family's ability to buy goods and services that contribute to healthy child development, and to fully meet the costs of participation in school.
- **Family stress model** – the emotional impact that experience of poverty can have on a parent or carer's mental health and wellbeing, which can increase stress and lead to poorer mental health.

Families living on a low income may not have access to sufficient resources to lead a healthy lifestyle, including access to affordable healthy food, good-quality housing, adequate home heating and affordable social and cultural opportunities. These can directly impact on children's physical and mental wellbeing,[8] as well as having a negative impact on a parent or carer's own mental health and wellbeing, which in turn will impact on their interactions with their child.[2]

Children's experience of poverty can also lead to bullying, or feelings of exclusion, as they may have fewer friends and less access to the social activities of their peers.[10]

The impact of income and deprivation on children's health in Scotland

Data from Scotland is provided below to illustrate how poverty impacts on children's health. Few sources of data publish direct comparisons of child health by whether or not the children are living in poverty. As an imperfect solution, we use two measures: children living in the lowest income households or, where this was not available, children living in the most Scottish Index of Multiple Deprivation (SIMD).

While not all children living in deprived areas are living in poverty, there is a clear association between income and area poverty: more than a third of children in the most deprived SIMD quintile live in low-income households compared to fewer than one in 20 in the least deprived quintile.[11]

More than a third of children in the most deprived SIMD quintile live in low-income households compared to fewer than one in 20 in the least deprived quintile.

Where Scottish data is available by income level, figures show:

- Children aged 2–15 who are overweight or obese*
  - 32% (almost one in three) of children aged 2–15 in the lowest income households are at risk of being overweight or obese, compared to one in four (25%) in the highest income households.
- Unintentional injuries among children†
  - Growing Up in Scotland found that children aged 5–6 with experience of poverty were more likely to have had one or more accidents in the last year (18–20%), compared to children who had never experienced poverty (12%). No difference was found by income among younger children.
- General health ‡
  - Children under 16 years in the lowest income households were almost four times more likely to have 'fair', 'bad' or 'very bad' reported general health compared to those in the highest (11% compared to 3%).
- Mental wellbeing §
  - The number of children aged 4–14 years in the lowest income households were four times as likely to have poorer mental wellbeing as those in the highest income households (13% compared to 3%).

---

* Overweight or obese (>= 85th centile), Scottish Health Survey 2016.

† Standardised discharge ratio for emergency hospital admissions as a result of an unintentional injury, children aged under 15: by 2016 Scottish Index of Multiple Deprivation (SIMD), 2016/17. Source: ISD Scotland (SMR01).

‡ Percentage of children under 16 with fair, bad or very bad self-rated general health: parent completed for children aged under 13, and self-completion for those aged 13–15: by Equivalised Income Quintiles – OECD score, 2016. Source: Scottish Health Survey.

§ Percentage of children aged 4–12 with a borderline or abnormal Strengths and Difficulties Questionnaire score of 14 or more, 2013–2016: by Equivalised Income Quintiles – OECD score, 2016, 2016. Source: Scottish Health Survey. SDQ is recognised as a measure of child mental wellbeing.

Where data is unavailable by income, some key figures for impact on child health are given below by SIMD quintile (quintile 1 represents the 20% most deprived areas in Scotland and quintile 5 represents 20% least deprived areas).

- Infant mortality rates ¨
  - Infant mortality rates in the most deprived areas in Scotland are over 50% higher than those in the least deprived areas. In 2011–15 there were on average 4.6 deaths per 1,000 live births in the most deprived quintile compared with 3.0 in the least deprived areas. While infant death rates have fallen across all deprivation quintiles, the gap has persisted over time.
- Babies born with a low birthweight ††
  - Almost twice as many babies are born with low birthweight in the most deprived areas compared to the least deprived (7% compared to 4%).
- Babies exclusively breastfed at 6–8 weeks old ‡‡
  - 17% of babies in the most deprived areas compared to 46% of babies in the least deprived areas are exclusively breastfed at 6–8 weeks old.
- Dental health §§
  - The levels of tooth decay among primary 7 pupils from the most deprived areas was more than double the rate among primary 7 pupils from the least deprived areas (34% compared to 14%).
- Teenage pregnancy ¨¨
  - Rates of teenage pregnancy (under 18s) were five times higher in the most deprived areas compared to the least deprived in 2016 (36 per 1000 women compared to 7 per 1000). The absolute gap between the most and least deprived is narrowing with rates in the most deprived areas falling more.

¨ Crude infant mortality rate per 1,000 live births: by Scottish Index of Multiple Deprivation (SIMD), 2011–2015. Source: National Records of Scotland.

†† Percentage of live singleton births with a low birthweight (<2,500g): by 2016 Scottish Index of Multiple Deprivation (SIMD), 2016/17. Source: SMR02.

‡‡ Percentage of children exclusively breastfed at 6–8 week review: by 2016 Scottish Index of Multiple Deprivation (SIMD), 2016/17. Source: CHSP Pre-School August 2017, ISD Scotland

§§ Percentage of P7 pupils with dental decay: by 2016 Scottish Index of Multiple Deprivation (SIMD), 2017. Source: ISD NDIP Database.

¨¨ Teenage pregnancy rate (delivery + termination), mothers aged <18: by 2016 Scottish Index of Multiple Deprivation (SIMD), 2016. Source: NRS, ISD Scotland.

Poverty, child development and attainment

- Children growing up in poverty have poorer social, behavioural and cognitive outcomes than better-off children.
- This affects children's school outcomes, resulting in lower educational attainment which can last into adulthood.
- Both the lack of money to buy resources and the impact of maternal financial stress can negatively impact on children's outcomes.
- Higher qualification levels and skills are associated with substantially higher earnings and employment prospects for individuals and future generations.

Children from lower income households tend to have worse outcomes than their better-off peers in terms of cognitive development and school achievement[2] as well as social and behavioural development. This has direct impact on child health and their education as well as potentially impacting on health outcomes as an adult.

These children are also at greater risk of lower educational outcomes compared to those from more affluent families.[12] Although many children living in disadvantaged circumstances do well in school, there is a clear gradient in educational attainment by deprivation, and a persistent gap between the most and least deprived areas.

For example, in the UK millennium cohort study, children born into poverty have significantly lower school test scores at ages 3, 5 and 7 years compared to more affluent children. The evidence also suggests that continually living in poverty during the early years has a cumulative negative impact on a child's cognitive development even after controlling for a wide range of background characteristics and parenting investment.[13]

How poverty impacts on child development is complex. As previously mentioned, two key pathways have been proposed which capture the key issues which impact on child health over time, although there may be other pathways as well:[2]

- **The investment model** – identifies the lack of money to buy goods and services which limit the ability to create a home environment that facilitates learning through books, educational toys and a quiet space to study; extracurricular activities and trips out; equitable participation in school activities; a healthy diet, sports clubs and good-quality housing.
-

- **The family stress model** – describes the emotional strain parents and carers endure when living in poverty. This places them at greater risk of stress and poorer mental health, impacting on their relationship with their children. This, alongside the direct impact of experiencing poverty on a child's mental wellbeing, can also have a negative impact on child development.

Both of these pathways can affect the interactions between parents/carers and their children, negatively impacting on child development and attainment.[2] The cumulative effect of living in poverty and exposure to these risk factors, as well as the timing of exposure, whether in early childhood or adolescence, can have a long-lasting impact on health outcomes.[4 14]

More recent and emerging evidence has suggested that growing up in poverty has a developmental impact on brain structure and formation[15a&b] and that experiencing poverty at a young age can have an effect on brain development specifically in areas of the brain that are responsible for language, executive function and memory.[16 17]

However, there is good evidence that many other factors can positively impact on educational attainment for children experiencing poverty. These include:

- parental engagement with a child's education
- good-quality preschool education
- extra-curricular support during school time.[12 18]

How poverty impacts on child development and educational attainment in Scotland

Educational outcomes

The differences in educational outcomes in Scotland are considerable, starting in preschool and continuing into adulthood. The environment children are exposed to from a very early age has a strong and direct impact on children's school achievement as well as their later chances in adulthood.

The Scottish cohort study Growing Up in Scotland[19] report on health inequalities in the early years found that at the age of five, children from higher-income families were 13 months ahead in their knowledge of vocabulary and 10 months ahead in their problem solving compared to those children from lower-income families.

At the age of five, children from the highest-income families are ahead of children from the lowest-income families by:

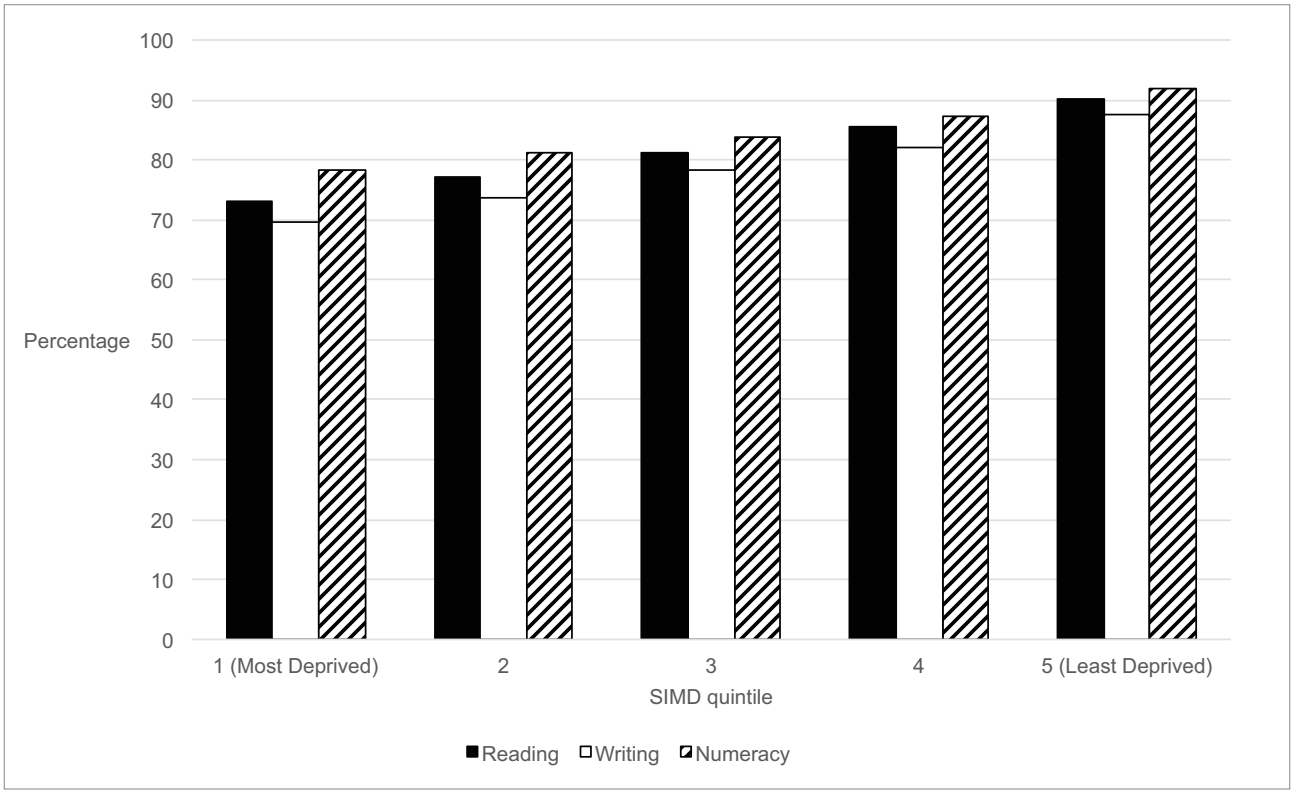
- 13 months in knowledge of vocabulary

- 10 months in problem-solving skills.

In primary 1 there is a step increase in the percentage of pupils achieving early level Curriculum for Excellence (CfE) from the most deprived to the least deprived in reading, writing and numeracy (see Figure 1). Differences range from 14% in numeracy to 18% in writing. [20]

In terms of measures used to look at attainment, Scottish data tends to be based on SIMD rather than income levels.

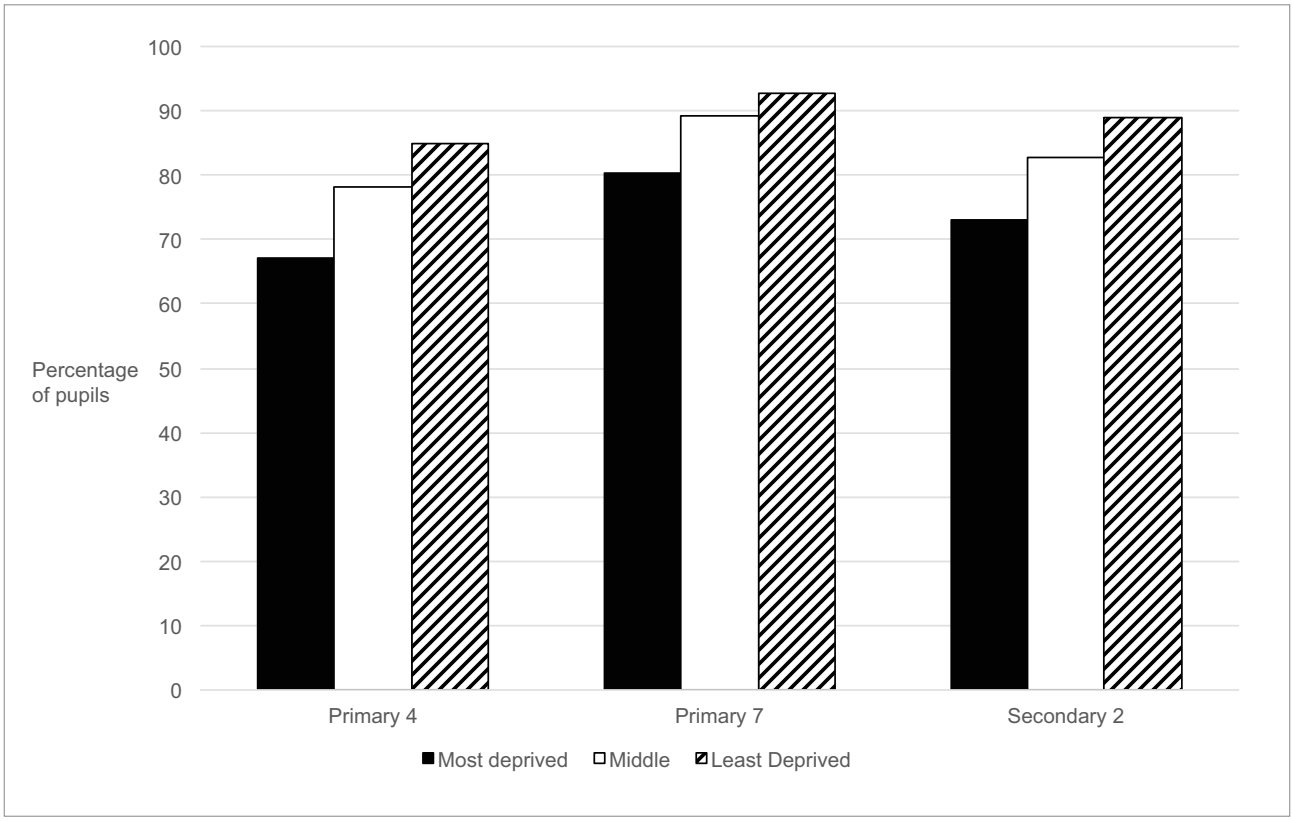
Figure 1. Percentage of Primary 1 pupils achieving early level Curriculum for Excellence results.



Source: Scottish Government, Achievement of Curriculum for Excellence Levels Results (ACEL).

This pattern also continues throughout primary school and into S2 in reading, writing and numeracy (see Figure 2).

Figure 2. Percentage of P4, P7 and S2 pupils performing well or very well in reading, by deprivation category.

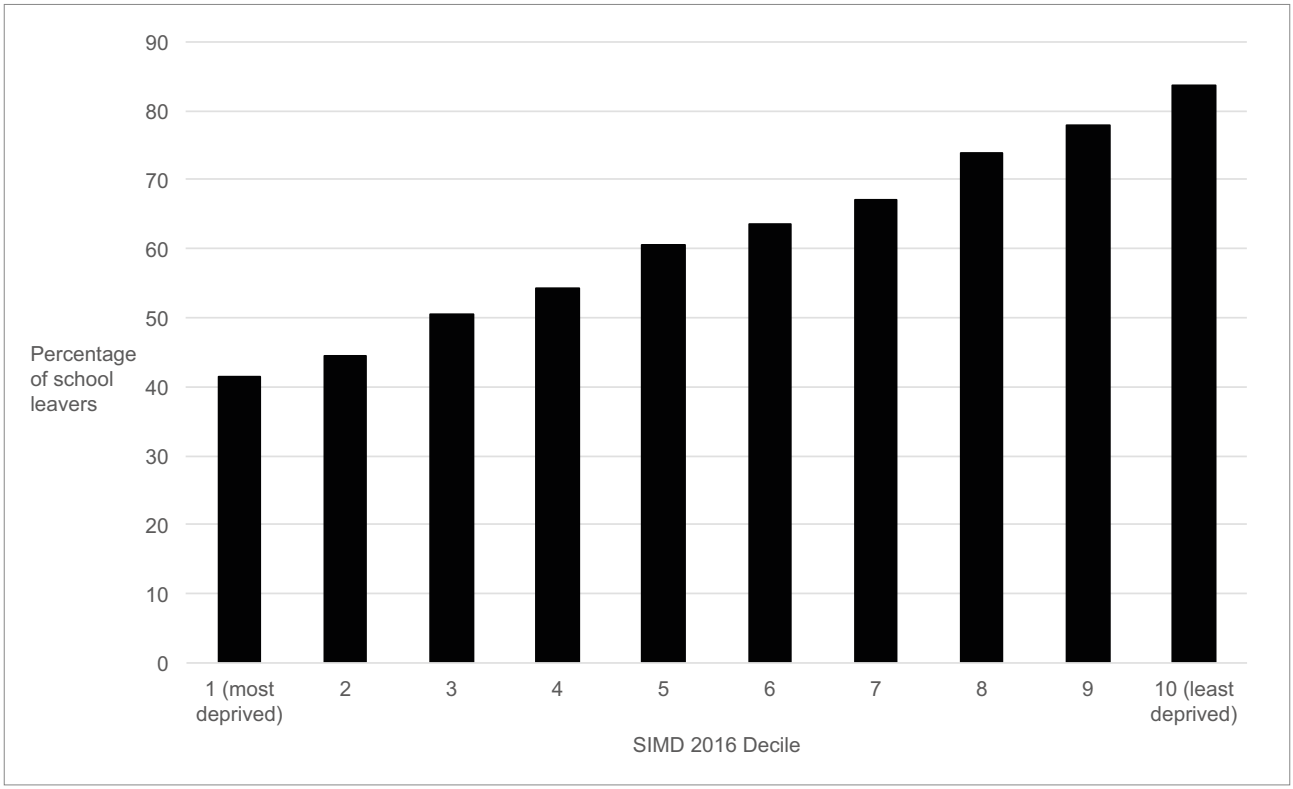


Source: Scottish Survey of Literacy and Numeracy 2016.

For example, the proportion of S2 children who were rated as doing well in reading ranged from 73% in the most deprived areas to 89% in the least deprived areas (see Figure 2).[20] Similar patterns were seen for writing, listening, talking and numeracy. [21]

The difference in the percentage of school-leavers who have obtained SVQ level 6 qualifications or above is even more stark between the most and least deprived areas, with twice the number in the least deprived obtaining level 6 and above qualifications (84% compared to 42%) (see Figure 3).

Figure 3. Percentage of Scottish school-leavers with SVQ level 6 qualifications.



Source: Scottish Government, Attainment and Leaver Destinations, Table A1.1.

These figures show that the gap in attainment can persist from the early years and throughout school, resulting in a large difference between students in the most and least deprived areas leaving school with SVQ level qualifications.

Why does child poverty matter for adult health?

Growing up in poverty, continual exposure to risk factors and poorer educational outcomes can also lead to poorer health in adulthood. In addition to experiencing higher rates of adult mortality, people with experience of child poverty tend to have higher rates of physical disability, clinical depression and premature death.[23] This can partly be explained because the experience of financial hardship or poverty in childhood increases the risk of social and economic disadvantage in early adulthood, including:

- lower earnings, higher risk of unemployment or spending time in prison (men) and becoming a lone parent (women)[24 25]
- lower educational attainment, linked to lower birthweight and more health problems in childhood,[26] which are more common among children in low-income households or living in deprived neighbourhoods
- homelessness.[27]

In addition to being linked to poorer adult health in their own right, all these factors are associated with lower adult household incomes. This is problematic because adults with low incomes are at greater risk of worse outcomes in general including poorer health, lower life expectancy and lower wellbeing than individuals with higher income.[2 28]

References

1 Treanor M. Impacts of poverty on children and young people briefing. University of Stirling: Scottish Child Care and Protection Network; 2012. www.eastrenfrewshire.gov.uk/CHttpHandler.ashx?id=11002&p=0

2 Cooper K and Stewart K. Does money affect children's outcomes? An update. London: Centre for Analysis of Social Exclusion; 2017. http://sticerd.lse.ac.uk/dps/case/cp/casepaper203.pdf

3 Wickham S, Anwar E, Barr Ben et al. Poverty and child health in the UK: using evidence for action. Archives of Disease in Childhood, 2016 0:1–8. https://adc.bmj.com/content/archdischild/101/8/759.full.pdf

4 Wickham S, Whitehead M, Taylor-Robinson D et al. The effect of a transition into poverty on child and maternal mental health: a longitudinal analysis of the UK Millennium Cohort Study. Lancet Public Health 2017; 2: e141–48 www.thelancet.com/action/showPdf?pii=S2468-2667%2817%2930011-7

5 Pillas D, Marmot M, Naicker K et al. Social inequalities in early childhood health and development: a European-wide systematic review. Pediatric Research volume 2014 76; 5 www.ncbi.nlm.nih.gov/pubmed/25122581

6 Taylor-Robinson D, Wickham S and Barr B. Child health at risk from welfare cuts. London: BMJ; 2015. www.bmj.com/content/351/bmj.h5330

7 Benzeval M. How does money influence health? York: Joseph Rowntree Foundation; 2014. www.jrf.org.uk/report/how-does-money-influence-health

8 BMA. Cutting away at our children's futures: how austerity is affecting the health of children, young people and families. London: BMA; 2016. www.bma.org.uk/collective-voice/policy-and-research/public-and-population-health/child-health/cutting-away-at-our-childrens-future

9 HM Treasury. Ending child poverty: everybody's business. London: HM Treasury; 2008. http://dera.ioe.ac.uk/7764/1/bud08_childpoverty_1310.pdf

10 Children's Parliament. The weight on our shoulders: Consultation on the Child Poverty Bill and Delivery Plan. Edinburgh: Children's Parliament; 2018. www.childrensparliament.org.uk/wp-content/uploads/Child-Poverty-CP-Report-2018.pdf

11 Giles and Richardson. Children and Young People's Profile: Scotland overview report. Edinburgh: NHS Health Scotland; 2017. www.scotpho.org.uk/media/1568/cyp-profile-overview-report-sept17.pdf

12 Sosu E and Ellis S. Closing the attainment gap in Scottish education. York: Joseph Rowntree Foundation; 2014.
www.jrf.org.uk/report/closing-attainment-gap-scottish-education

13 Dickerson and Popli. Persistent poverty and children's cognitive development. Evidence from the UK Millennium Cohort Study. Journal of the Royal Statistical Society, 2016; 179, Part 2, pp. 535–558
https://rss.onlinelibrary.wiley.com/doi/epdf/10.1111/rssa.12128

14 Green M, Stritzel H, Smith C et al. Timing of poverty in childhood and adolescent health: Evidence from the US and UK. Social Science and Medicine, 2018; 197: 136–143.
www.ncbi.nlm.nih.gov/pubmed/29232621

15a Jensen SK, Dickie EW, Schwartz DH et al. Effect of early adversity and childhood internalizing symptoms on brain structure in young men. JAMA Pediatrics, 2015 169:938–46.
www.ncbi.nlm.nih.gov/pubmed/26280410

15b Jensen S, Berens A, Nelson C. Effects of poverty on interacting biological systems underlying child development. The Lancet Child & Adolescent Health Volume 1, Issue 3, November 2017, Pages 225-239
www.sciencedirect.com/science/article/pii/S235246421730024X?via%3Dihub#bib6

16 Hair NL, Hanson JL, Wolfe BL et al. Association of child poverty, brain development, and academic achievement. JAMA Pediatrics, 2015; 169:822–9.

17 Noble KG, Houston SM, Brito NH et al. Family income, parental education and brain structure in children and adolescents. Nature Neuroscience, 2015 18:773–8.
www.ncbi.nlm.nih.gov/pubmed/25821911

18 Early Intervention Foundation (EIF). Disadvantage, behaviour and cognitive outcomes longitudinal analysis from age 5 to 16. London: EIF; 2017.
www.eif.org.uk/publication/disadvantage-behaviour-and-cognitive-outcomes

19 Scottish Government. Growing up in Scotland: health inequalities in the early years: key messages from 10 years of the Growing Up in Scotland Study 2015. Edinburgh: Scottish Government; 2015.
www.gov.scot/Resource/0048/00486755.pdf

20 Scottish Government. Scottish Survey of Literacy and Numeracy 2016 (Literacy) supplementary table. Edinburgh: Scottish Government; 2017.
www.gov.scot/Publications/2017/05/7872/0 Accessed 11/6/18

21 White J. Children's social circumstances and educational outcomes. Edinburgh: NHS Health Scotland; 2018.
www.healthscotland.scot/media/2049/childrens-social-circumstances-and-educational-outcomes-briefing-paper.pdf

22 ScotPHO: Children and Young People's Profile: Scotland overview report, 2017. www.scotpho.org.uk/media/1568/cyp-profile-overview-report-sept17.pdf

23 Gupta RP, de Wit ML and McKeown D. The impact of poverty on the current and future health status of children. Paediatric Child Health, 2017; 12(8) 667–672. www.ncbi.nlm.nih.gov/pmc/articles/PMC2528796

24 Gregg P, Harkness S and Machin S. Child poverty and its consequences. York: Joseph Rowntree Foundation; 1999. www.jrf.org.uk/report/child-poverty-and-its-consequences

25 Gregg P, MacMillan L and Vittori C. Nonlinear estimation of lifetime intergenerational economic mobility and the role of education. Department of Quantitative Social Science working paper no. 15-03. London: Institute of Education; 2015. http://repec.ioe.ac.uk/REPEc/pdf/qsswp1503.pdf

26 Case A, Fertig A and Paxson C. The lasting impact of childhood health and circumstances. Journal of Health Economics, 2005, v24(2,Mar), 365–389. www.sciencedirect.com/science/article/pii/S0167629604001262?via%3Dihub

27 Bramley B, Fitzpatrick S. Homelessness in the UK: who is most at risk? Housing Studies, 2018, 33:1, 96–116, DOI: 10.1080/02673037.2017.1344957. https://pureapps2.hw.ac.uk/ws/portalfiles/portal/15634542/Homelessness_in_the_UK_who_is_most_at_risk.pdf

28 Cooper K and Stewart K. Does money in adulthood affect adult outcomes? York: Joseph Rowntree Foundation; 2015. www.jrf.org.uk/report/does-money-adulthood-affect-adult-outcomes

www.healthscotland.scot