NHS Health Scotland

Children's social circumstances and educational outcomes.

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Contents

Key messages 2
1. Introduction 3
2. Family characteristics 6
3. Physical environment 11
4. Social environment 15
5. Conclusion 24
References 29
Appendix 1 43
Appendix 2 46

This paper is one of an occasional series which explores topics of current interest and provides an introduction to concepts and current thinking. The purpose is to give the reader an understanding of how the circumstances in which children and young people are born, grow up and learn contribute to inequalities in educational outcomes.

Key messages

- Many children and young people living in disadvantaged circumstances do well. The quality of the social and physical environments that they experience as they grow up is key. A combination and accumulation of these experiences can enhance or hinder children and young people's educational outcomes. Parental income and education shape the social and physical environments.
- Parental income is important for educational outcomes. Lack of money can limit the availability of resources for learning as well as adversely affect the family social environment through the impact of financial vulnerability on parental mental health. Strong family relationships and supportive parenting can help mitigate the effects of living in disadvantaged circumstances on educational outcomes.
- Lower educational attainment has been found to be associated with aspects of children and young people's physical environment such as living in overcrowded housing, in an inadequately heated home and/or in a disadvantaged neighbourhood. Experience of food insecurity has been linked with poorer educational outcomes as well as emotional and behavioural problems.
- High aspirations for continuing on to higher or further education have been reported among parents and children across the spectrum of socio-economic backgrounds. Rather than an innate characteristic, aspirations are shaped by a broad range of influences including family, neighbourhood, school and wider social factors which interact in complex ways.

- The social environment within schools can play a role in mediating the relationship between children and young people's circumstances and educational outcomes. Children and young people attending a school with a positive school climate have been found to do better than might be expected based on their socio-economic background.

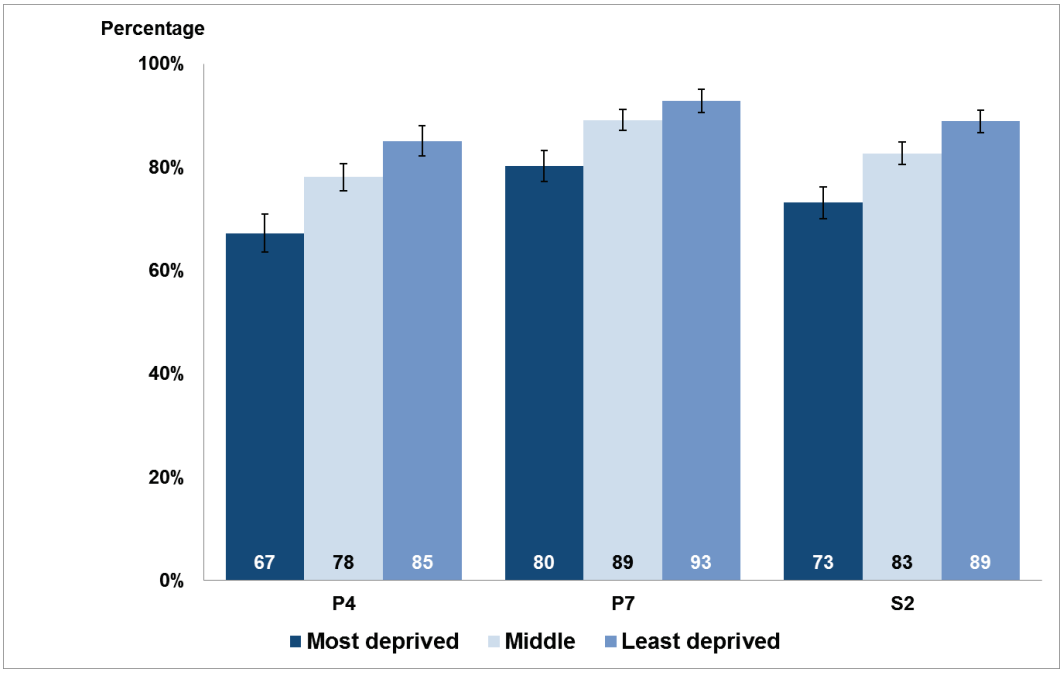
1. Introduction

Educational attainment influences employment opportunities and income in adulthood. People with lower levels of education are less likely to have access to resources important for health such as social support, a healthy physical environment and warm, safe housing. Poor educational attainment has been linked with increased rates of death and illness in adults for a wide range of health conditions.[1] Children and young people with parents who have lower educational attainment are less likely to do well at school than their peers with better-educated parents.[2] [3] [4]

In general, children living in poverty* have lower educational outcomes compared to those from more affluent families.[5] [6] [7] While these associations are not unique to the UK, differences in Scotland are marked, starting before children begin school and persisting throughout.[6] In the Growing Up in Scotland study (GUS), children from low-income families were about 13 months behind in vocabulary skills and 10 months behind in problem-solving skills at school entry compared to their more affluent peers.[8] Likewise, in the 2016 Scottish Survey of Literacy and Numeracy, the proportion of Primary 4 children who were assessed as doing well or very well in reading ranged from 67% in the most deprived areas to 85% in the least deprived areas (Figure 1).[9] Similar patterns were seen for writing, listening and talking[9] and numeracy.[10]

* Poverty is a lack of income (either in absolute terms or relative to the rest of the population), with the most common threshold defined as having an income below 60% of median income. (NHS Health Scotland. *Income, Wealth and Poverty. Inequality Briefing 8* Edinburgh: NHS Health Scotland; 2017.)

Figure 1: Proportion of pupils performing well or very well in reading by stage and deprivation category[9]

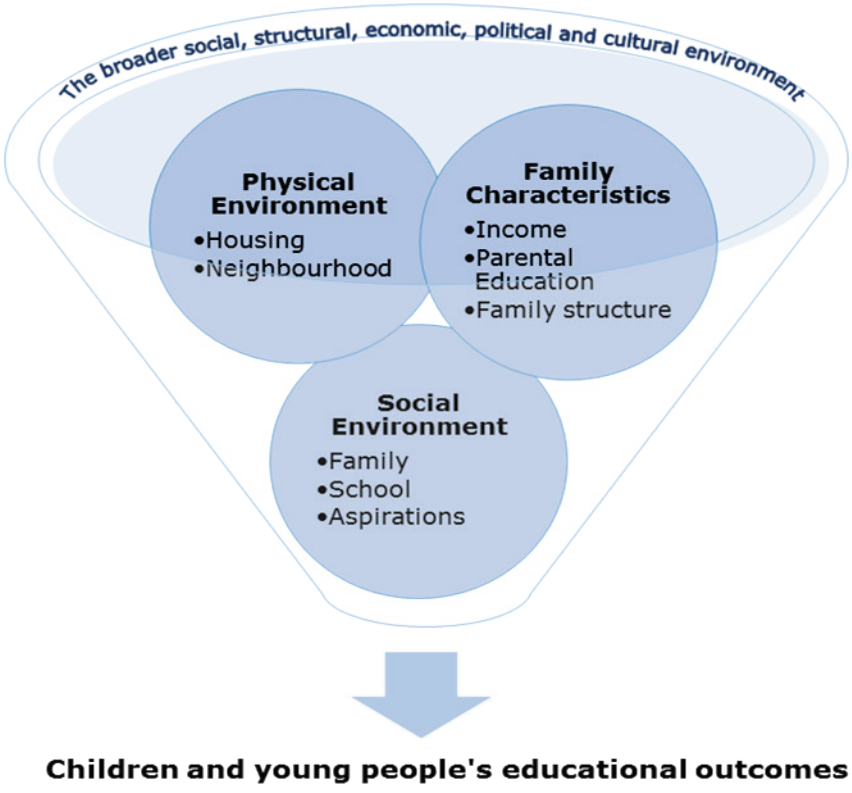


Many children and young people living in disadvantaged circumstances do well.[11] The quality of the social and physical environments that children experience, and are exposed to, is key.[12] [13] [14] These environments interact with the broader structural, economic, political and cultural environment in complex ways to influence educational outcomes.[12] [15] [16] [17] [18] Thus, even though family characteristics, such as parental income and education, do not necessarily determine children and young people's educational outcomes, they shape the environments in which children and young people live and learn.[19]

This paper begins by looking at the influence of family characteristics on educational outcomes. The following sections discuss how physical and social environments can shape the educational achievements of children and young people (Figure 2). While these contributing factors are, for clarity, explored separately, they are inherently related. Advantages or disadvantages tend to accumulate for individual children and young people.[3] [12] For example, parents

with lower educational attainment are more likely to earn a lower income. Income influences the type and location of housing that families can access, which in turn determines the physical environment of the neighbourhood. The social environment within the home may be adversely affected by the stress experienced by parents living on a low income. The overarching influence of the broader structural and political factors is outside the scope of this review. More information about socio-economic inequalities can be found on NHS Health Scotland's website at www.healthscotland.scot/health-inequalities. The final section of this paper summarises the key findings and offers suggestions for positive actions at a local level.

Figure 2: Influences shaping educational outcomes



The primary focus of this paper is children and young people's educational outcomes, with an emphasis on income-related differences. However, healthy social and emotional development in childhood and adolescence has been shown to be positively associated with better educational outcomes.[7] In addition, children's cognitive and language development in the early years is

important for future educational outcomes.[20] With this in mind, studies that reported social and emotional wellbeing or measures of cognitive development around the age that children start school were considered for inclusion in this report. The sources of information for this review were, primarily, papers reporting UK-based longitudinal studies and relevant international reviews. The method used to identify papers for this review is detailed in appendix 1. Descriptions of the included longitudinal studies can be found in appendix 2.

2. Family characteristics

2.1 Income

Parental income is important for educational outcomes.[18] [21] There is strong consistent evidence that links growing up and living in poverty with poorer educational outcomes.[18] [20] [21] [22] [23] [24] However, whether income impacts on educational outcomes directly or indirectly via factors, such as maternal age, lone parenthood or parental education, which are associated with low income, has been a subject of debate.[21] [23] In a systematic review* which looked at the pathways between low income and children's outcomes, Cooper & Stewart found that a family's income affects how well their child does at school.[23] [24] Likewise, using information from the Millennium Cohort Study (MCS), researchers found that, after controlling for other family background characteristics, living in poverty had independent adverse impacts on

* A systematic review is a form of research that attempts to collect all the relevant evidence to address a specific question or topic. Researchers use explicit and transparent methods to perform a thorough literature search and critical appraisal of individual studies. The findings are brought together so that conclusions about what is known and not known about a given question or topic can be drawn. Using evidence from systematic reviews reduces the risk that findings from individual studies are atypical and/or biased. Thus, when review-level evidence is available, and has been carried out well, we can have greater confidence about the reliability of the findings.

children's cognitive development.[22] The effect was greater for children who had experienced persistent poverty.[*] [20 22]

Income can impact on educational outcomes directly through parents' ability to pay for resources such as good quality housing and childcare as well as age-appropriate educational toys and extra-curricular activities.[2 18 23 25] Parents on higher incomes are able to help their children and young people to access good quality schools by paying for private schooling or buying a house in a catchment area of a 'good' school. In addition, they are able to afford to supplement school teaching with private tuition or buy educational resources such as revision guides and specimen examination papers.[18]

Even though universal education is provided free in Scotland,[18 21] attending school has financial costs. Not only is money needed to buy essential items for school, such as school uniform, it enables the provision of equipment and activities, outside the classroom, that are supportive of positive educational outcomes.[23] For example, higher income families are more able to provide home computers and internet access that can be used to undertake homework, revision and independent study.[26] In secondary school, the likely financial costs of certain subjects such as money for ingredients in Home Economics or artist materials in Art and Design may influence a young person's choice of subject to study.[27] Young people from low-income families may miss out on new experiences if they are unable to afford the costs of school and subject-specific field trips.[27] Transport costs may deter young people from attending after-school or holiday revision sessions, as school transport tends to be provided at set times at the beginning and end of the school day.[26] School transport policies tend to allocate free transport to and from school on the basis of the distance the young person lives from school rather than their ability to pay.[27]

[*] In MCS, families with an equalised net household income (household size and composition) less than 60% of the national median income at each of three data collection points were considered to be living in persistent poverty.

Parents with higher incomes are more able to pay for broader learning opportunities outside school. By linking information from the MCS with attainment at Key Stage 1 and 2*, Chanfreau et al examined whether taking part in out-of-school activities when at primary school was linked with educational outcomes by the end of primary schooling. Overall, after taking into account factors such as previous levels of attainment, participating in out-of-school activities such as organised physical activities and sports club attendance was associated with positive educational outcomes. Time spent reading as an informal out-of-school activity was positively associated with greater attainment at Key Stage 2.[28] In this study, children from low-income households were markedly less likely to take part in organised out-of-school activities.[28 29] Nonetheless, attending an after-school club was found to be associated with Key Stage 2 attainment. Compared to disadvantaged children who had never attended an after-school club, children who attended one or two days per week were more likely to have made better progress than was expected based on their circumstances and previous attainment.[28 29] However, the type and quality of activities provided in the after-school clubs may be an important factor for progress. In this study, it is not known what activities the children took part in at the after-school clubs. Many out-of-school activities require financial resources to pay for admission, tuition and/or special clothing and equipment. There may also be hidden costs such as paying for transport home after school hours.[26] Unable to join their peers taking part in extra-curricular activities, children from low-income households can feel excluded.[30]

As well as directly impacting on children's education outcomes, parental income may impact indirectly through the effect of financial vulnerability on parents' mental health, which, in turn, may compromise their capacity to parent their children in a warm and supportive way.[18 23 24 25 31] This is discussed in more detail in section 4.1.2.

* National exams sat by pupils in England at the end of Year 2 (equivalent of Primary 3 in Scotland) and at the end of Year 6 (equivalent of Primary 7 in Scotland) respectively.

2.1.1 Diet and nutrition

Poor diet and nutrition has been linked with poorer academic, social and emotional development in children and young people.[32] Diets deficient in essential vitamins and minerals such as iron and B vitamins may affect an individual's ability to concentrate and pay attention in the classroom. In addition, a poor diet may leave children and young people more susceptible to illness, reducing time in the classroom through absenteeism.[33]

There is review-level* evidence that regular breakfast consumption[34 35] and eating a healthy diet[34 36] is linked with better educational outcomes.[34 35] In addition, regular consumption of energy-dense nutrient-poor food has been linked with poorer in-class behaviour and educational outcomes.[36] In the Avon Longitudinal Study of Parents and Children study (ALSPAC), a reported 'junk food' dietary pattern, characterised by consumption of high-fat processed foods, snack foods high in fat and/or sugar and fizzy drinks at age three years was found to be associated with lower results at national Key Stage 2 tests. Although the association was small, it remained even after confounding factors such as socio-economic position were taken into account.[37]

Families on a low income spend a greater proportion of their income on food than higher-income households, even though the actual amount spent is less. In the Living Costs and Food Survey 2015/6, households with the 10% lowest incomes spent 17% of their total expenditure on food and non-alcoholic drinks compared to 8% for households with the highest 10% of incomes.[38] There is review-level evidence that experience of food insecurity† is associated with poorer educational outcomes as well as children's emotional and behavioural problems. This association remained even after families' socio-economic position was taken into consideration. However, once maternal mental health symptoms were taken into account, the association weakened.[39]

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* Review-level evidence is a term used to describe evidence that has been taken from the findings of one or more systematic reviews.

† 'The inability to acquire or consume an adequate or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so.' (NHS Health Scotland. *Position Statement on Food Poverty*. Edinburgh: NHS Health Scotland; 2015.)

2.2 Parental education

Linked to parental income, parental education has been found to be independently strongly associated with children's outcomes.[2 3 4 40 41] The length of time spent in education and academic achievement can influence the way that parents interact with their children, the type of activities they encourage, as well as the attitudes and values expressed about learning.[4] Thus, it is possible that higher parental educational attainment can modify the effects of living in a low-income household.[4 25] For example, educated parents are more likely to read for pleasure, which has been found to be positively associated with educational outcomes. Children may be encouraged to read by following their parents' example.[18] In addition, if parents are more articulate, they may be able to access information and make more effective use of public services.[25]

Familiarity with the education system may mean higher-educated parents are more able to help their children find their way around.[18 42] For example, more educated parents may be more able to guide their children's decisions about subjects to study in secondary school, which, in turn, are likely to affect future options for further or higher education and employment.[18 42] In addition, they are more likely to be able to provide support for their children's learning through their connections to people who can inspire, provide information and help with the provision of opportunities for educational or employment experiences.[2 15 21 23]

2.3 Family structure

Family structure, such as living in a single or two-parent household, can shape educational outcomes. However, there is inconsistent evidence that family structure independently impacts on educational outcomes. Instead, the effect may be accounted for by the poverty experienced by single parents.[20] In the Programme for International Student Assessment (PISA) 2012 survey,*

* See appendix 2.

on average across the OECD countries* taking part, after taking into account family characteristics such as socio-economic position, students living in single-parent families were marginally† more likely to be low performers in maths.[19] However, in the MCS, family structure and instability were not found to have any significant associations with cognitive ability after other family background characteristics were taken into account.[20] One reason for the differences between these two studies may be the ages of the study populations. The PISA survey tests 15-year-old students, whereas, in the MCS, children were assessed when they were 5 years. It is possible that the relative influence of living in a single-parent household may depend on the age of child or young person as well as the length of time spent in those circumstances. However, overall, the effect is liable to be small.

3. Physical environment

3.1 Housing

Poor housing conditions can affect children and young people's health and development directly or more indirectly by their effect on parents' mental health and, as a consequence, their capacity to parent in a warm and supportive way (see section 4.1.2). Aspects of housing such as housing tenure, residential mobility, overcrowding and living in cold homes have been linked with children and young people's outcomes.[43] [44]

3.1.1 Housing affordability

A significant proportion of a household's regular expenditure is accounted for by housing costs.[45] The costs of housing may dictate the amount of income that is available for educational activities and materials.[46] Renting privately may be the only option for families who are not able to access social housing or own their own home. Private rental costs tend to be higher than social

* The Organisation for Economic Co-operation and Development (OECD) is an intergovernmental economic organisation with 35 member countries.
† 1.2 times.

housing charges and a greater proportion of available housing does not meet Scottish Housing Quality Standards and, in general, is less energy efficient.[47] Poor housing can be stressful, in particular when there are worries about safety or struggles to have maintenance or repairs carried out. Many aspects may be outside the control of residents. Thus, poor housing may have an indirect effect on parental mental health.[31]

3.1.2 Housing tenure

Being able to buy the family home allows parents to have a greater choice of house location, size and quality.[45 48] In a systematic review that assessed the evidence about the relationship between social characteristics and early childhood health and development outcomes in Europe, Pillas et al found that a lack of parental home ownership was associated with an increased risk of unintentional injury and asthma.[16] Injury and illness are likely to affect attendance at school, and, as a result, potentially impact on educational outcomes. There is strong evidence that poor physical and mental health in adolescence is linked with poorer educational outcomes.[15 49]

In Scotland, at the end of March 2018, nearly a third (31%) of households living in temporary accommodation provided by the local authority, after being accepted as 'homeless', were families with children or a pregnant member. From 2017 to 2018, there was a 9% increase in the numbers of children living in temporary accommodation. This is the fourth consecutive year that the numbers have increased.[50] The wellbeing and educational outcomes of homeless children in the UK are not well documented.[45 51] Studies from the USA suggest that homeless school-aged children are at increased risk of developing mental health and behavioural problems compared to children living in low-income and housed families.[52]

Becoming and being homeless is likely to impact on children's outcomes directly and indirectly in complex and inter-related ways.[53] Children and young people's mental health and wellbeing may be affected directly by the uncertainty of their circumstances and loss of familiar surroundings as well the

stigma associated with becoming homeless and living in temporary accommodation.[54] Indirectly, the stress of becoming homeless can impact on parents' mental health and, as a consequence, is likely to disrupt relationships between children and their parents[55] (see section 4.1.2). Living in temporary accommodation can mean moving away from friends and families as well as changing school.[54] Children and young people's wellbeing and educational outcomes are likely to be affected by the disruption to peer support networks and to their education. More changes are likely if permanent housing is offered in another location[54] (see section 3.1.3).

3.1.3 Residential mobility

There is review-level evidence that high rates of moving are independently associated with an increased risk of behavioural problems during childhood (e.g. indirect aggression, property offences) and adolescence (e.g. earlier initiation of drug use, increased risk of teenage pregnancy).[56] [57] As moving frequently is linked with family characteristics, such as poverty, unemployment, family disruption and single parenting, the relationship between frequent moves during childhood and adolescence and children's outcomes is likely to be complex.[56] [57] The effects may depend on the underlying reasons for the move and whether the move involves a change of school or neighbourhood. Moving school and/or neighbourhood is liable to disrupt peer relationships and family support networks.[57] Using information from the National Pupil Database in England, Leckie found that frequent moves were negatively associated with educational outcomes.[58] Families living in private rented housing tend to be the most residentially mobile.[59]

3.1.4 Overcrowding

Living in overcrowded housing has been linked with lower educational attainment,[18] perhaps as a result of more limited opportunities to play as well as a lack of a quiet space for homework and revision.[60] In addition, it is possible that relationships within households may be adversely affected, potentially impairing a parent's ability to parent their children in a warm and

supportive way.[61] Overcrowding has been found to affect children and young people's health by increasing the risk of injury, respiratory conditions and the spread of infectious disease,[16] which is likely to reduce school attendance.[62] A higher proportion of households living in the social and private rented sector were identified in the Scottish Housing Condition Survey as being overcrowded.[47]

3.1.5 Cold homes

Living in inadequately heated housing can impact on children and young people's educational outcomes.[63] [64] [65] [66] In a longitudinal study of housing conditions and their associations with children's wellbeing in England, children and young people living in houses without affordable heating were found to be more likely to develop respiratory problems than children who had never experienced cold homes.[64] In homes without affordable heat, heating may be limited to one or two rooms such as the kitchen or living room. Thus, it may be difficult for a young person to have a quiet space for homework and revision.[64] Opportunities for children to play and young people to have privacy and personal space may be limited, potentially contributing to strained relationships between household members. In the above study, after taking into account background factors, adolescents who had lived for long periods in cold homes were found to be more likely to truant or be excluded from school.[64]

3.2 Neighbourhood

The physical environment of the neighbourhood in which children and young people live can influence educational outcomes.[46] There is international review-level evidence that living in a disadvantaged neighbourhood is associated with poorer educational attainment.[15] [67] In the Effective Pre-school, Primary and Secondary Education (3–16+) longitudinal study (EPPSE 3–16+), neighbourhood disadvantage was found to influence educational attainment independently of the effect of the family's socio-economic

position.[3] Living in a disadvantaged neighbourhood increases the risk that children and young people will be exposed to adverse environmental factors such as air pollution and excessive noise.[13 31] High-speed traffic may be more common and safe outdoor spaces, such as well-maintained greenspace, that children and young people can use to play and socialise, less widespread.[68] As a result, children and young people living in disadvantaged areas are more vulnerable to death and injury from road traffic accidents than those living in less deprived areas.[69 70 71]

The presence of vacant and derelict land, graffiti and litter in the neighbourhood coupled with poor street lighting can increase feelings of vulnerability to crime and fears for children and young people's safety.[63] There is international review-level evidence that reduced neighbourhood safety and exposure to community violence is a significant risk factor for poor psychological and academic outcomes in adolescents.[67 72] The range and quality of services and facilities such as childcare and recreational opportunities may also affect children's outcomes.[46 73] However, these findings were based on literature mainly from the USA, where experiences of neighbourhood safety and violence are likely to be different from Scotland. Therefore, the transferability of the findings to a Scottish context is not known.

4. Social environment

4.1 Family

4.1.1 Home learning environment

Children's language development is important for later literacy.[74] Socio-economic gradients in the proportion of children experiencing language delay at five years have been reported in a number of studies. For example, in the GUS study, children from the most socio-economically deprived group were more than twice as likely to experience language delay compared to their most affluent peers.[74]

The home learning environment is an important influence on young children's language development.[4] The vast majority of words spoken by children before three years are derived from the vocabulary of their parents. Children living in low-income households may be exposed to a lesser variety and complexity of language,[25 31 75] whereas more affluent families may be more likely to create opportunities for children to practise their language skills.[74] Activities such as shared book reading, regular trips to libraries, parks and museums, having educational, age-appropriate toys and parental monitoring of television viewing have been found to be important for language development.[4 74]

There is review-level evidence that the quality of the home learning environment is significantly associated with later literacy.[76] It is possible that living in a low-income household may compromise parents' capacity to provide a stimulating home learning environment.[75] However, in the MCS, irrespective of their socio-economic position, equal numbers of parents reported taking part in activities such as singing songs and rhymes, telling stories and playing music with their young children.[4] Nevertheless, mothers with no educational qualifications and mothers living in poverty were significantly less likely to report that they read regularly to their child at age three and five years.[4] Shared book reading exposes children to a wider vocabulary and range of grammatical structures than they are likely to experience in everyday conversations with their parents.[74] There is review-level evidence that parents reading to their children in the early years is associated with positive educational outcomes.[77]

The home learning environment continues to be important for children's educational outcomes as they get older. In the EPPSE (3–16+) longitudinal study, children who were found to be doing better than expected based on their background characteristics at age 11 lived in homes where parents had encouraged learning by, for example, reading with them, taking part in joint activities such as cooking together and finding ways to provide a wide range of educational experiences outside of school.[78] Even though the influence of the home learning environment weakens during adolescence, family support

for educational activities at Key Stage 3* was found to have strong effects on GCSE examination results.[3] For working parents in low-income families, demands on time and energy such as long working hours and shift patterns as well as caring responsibilities may limit the resources available to provide support for their children's learning.[27 42] For example, irregular working hours can mean that parents are unable to commit to activities that take place on a set day and time.

4.1.2 Relationships

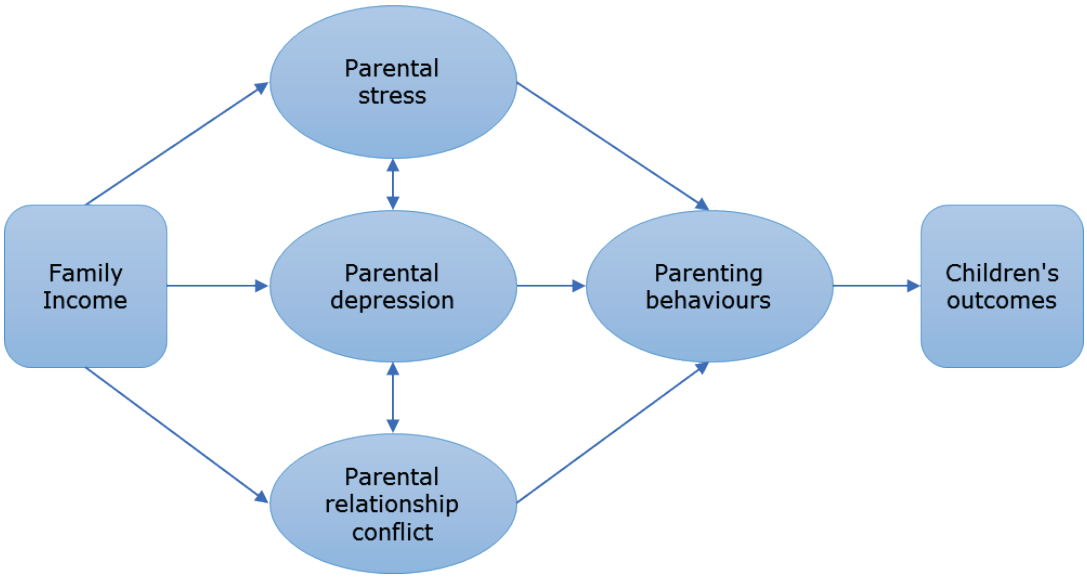
The relationship between children and young people and their parents may be key for educational outcomes.[31 79] Using information from the MCS, Keirnan and Mensah examined the links between living in persistent poverty, quality of parenting and children's development in the first year of school. Children who had been living in poverty at all three survey points were categorised as living in persistent poverty. Observations of individual positive and negative parenting behaviours when the child was three years old were used to construct a composite index of parenting. Overall, 61% of children who had not experienced living in poverty were assessed as having good achievement in the Foundation Stage profile.† In contrast, only 26% of those living in persistent poverty were assessed as having good achievement. In general, having a higher parenting index score increased the odds of having a good level of achievement. The differences for children living in persistent poverty were quite marked. Of those with a low parenting index score, 19% had good achievement, compared to 58% who had a high parenting index score.[11] Similarly, the quality and frequency of parent–child interactions in the early years was found to be positively associated with educational attainment at age 14 and 16 in the EPPSE (3–16+) study.[80]

Living in poverty is stressful.[23 24 73] Stress and mental health difficulties are likely to adversely affect the quality of parents' relationships with their children

* Key Stage 3 is the curriculum for pupils in Years 7–9 in England (equivalent to Secondary 1–3 in Scotland).
† Assessment of children's development achievement over first year of primary school carried out in England.

and their capacity to provide warm and supportive parenting (Figure 3).[15 25 75 81] Mental health difficulties may mean parents have fewer emotional resources available to support their children's development and wellbeing.[23 81] For example, they may be less patient and tolerant of age-related misbehaviours.[4 23 24] In addition, parents' sense of efficacy to influence their child's behaviour may be affected.[15] There is review-level evidence that children's cognitive, social and behavioural outcomes are negatively affected by parental stress[23 24] and mental health difficulties.[67] Social, emotional and behaviour problems including hyperactivity/inattention, conduct and peer-relationship problems have been linked with poorer educational outcomes.[4 18]

Figure 3: Family Stress model* [23]



Parenting styles contribute to children's social, emotional and behavioural development. Warm, sensitive parenting supports the development of social competencies such as emotional regulation, attention control and pro-social behaviours, which have been linked with school success.[4] Authoritative parenting, characterised by high levels of warmth and control with the establishment of appropriate boundaries and positive discipline,[11] has been found to be associated with higher levels of academic achievement.[15 82]

* Cooper and Stewart (2013), page 40

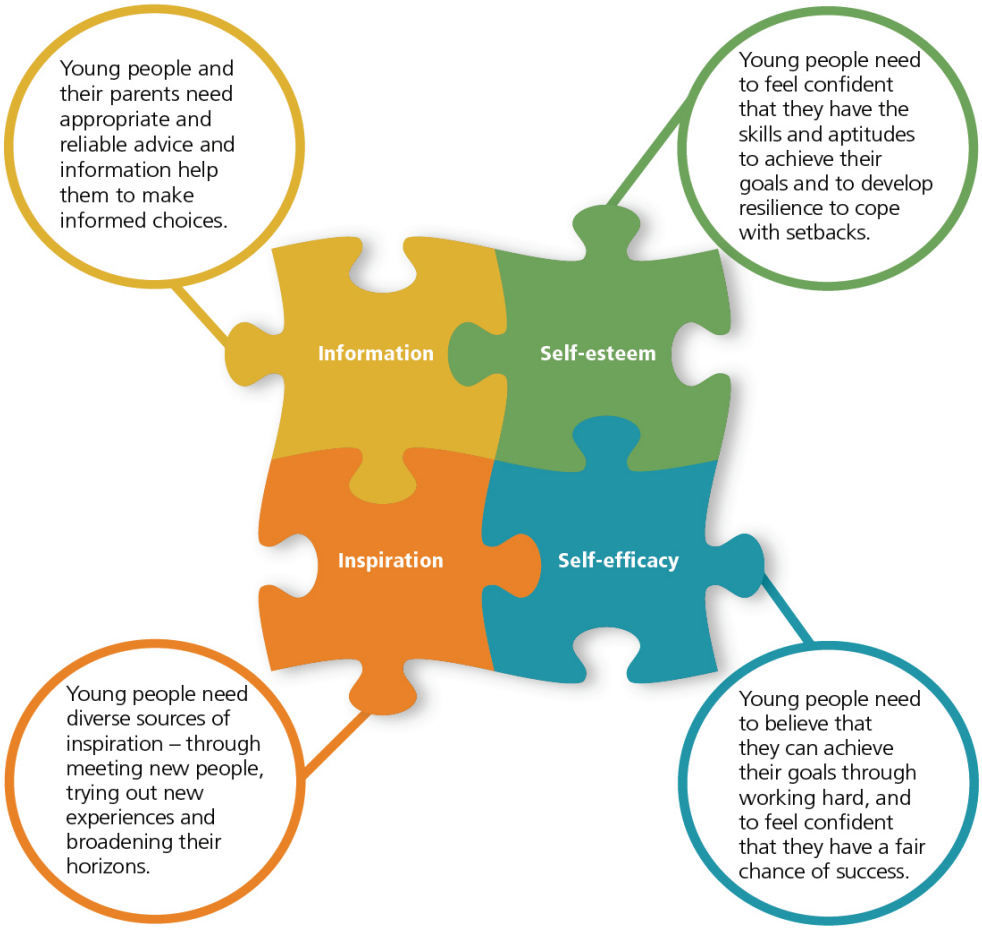
Strong family relationships and supportive parenting can help mitigate the adverse effects of living in disadvantaged circumstances.[15] [17] In the EPPSE (3–16+) study, the quality of parent–child interactions in the early years was found to have a significant positive effect on educational attainment at age 14 and 16 years.[80] Parents of children who were exceeding expectations based on their background characteristics, had set and reinforced high standards for their children's behaviour.[78] Similarly, in the Longitudinal Study of Young People in England study (LSYPE), after controlling for background family characteristics, factors that influenced whether a young person was more likely to do well included the time spent sharing family meals and the frequency they argued with their parents.[83]

4.2 Aspirations

In general, being ambitious to continue with learning after compulsory education finishes and go on to further or higher education and having career aspirations has been linked to better educational outcomes.[84] A young person's attitude and commitment to education is thought to be influenced by their aspirations and those of their parents.[85] Children and young people who believe that they have the ability to achieve their goal and think that their success is due to their hard work rather than luck tend to have higher aspirations[84] (Figure 4). In the LSYPE study, after controlling for family background characteristics, young people who had a greater belief in their ability at school as well as thinking outcomes were, in the main, the result of their own actions were more likely to do well at GCSE*.[83]

* The General Certificate of Secondary Education (GCSE) is an academic qualification, generally taken in a number of subjects by pupils at the end of Year 11 (roughly the equivalent of Secondary 4 in Scotland) in England, Wales and Northern Ireland.

Figure 4: Components of aspirations* [86]



Differences in aspirations has been suggested as one reason that educational outcomes of children living in disadvantaged circumstances differ from their more affluent peers.[83] [85] However, high aspirations for continuing on to higher education have been reported among parents and children across the spectrum of socio-economic backgrounds in a number of studies.[83] [85] [87] [88] For example, in the GUS study the majority of parents hoped that their young children would attend university or college in the future.[87] [89] Similarly, in the EPPSE (3–16+) study, aspirations for education beyond 16 years were high across all family income groups; only small differences in students' educational aspirations by family income were found.[85]

* Social Exclusion Task Force, page 10

Rather than an innate characteristic, aspirations are shaped by a broad range of influences including family, peers, neighbourhood, school and wider social factors which interact in complex ways.[85 86 88 90] There is review-level evidence that children and young people who have parents with high expectations for their child's educational and employment prospects are more likely to do well at school.[77 82] The educational achievements of parents have been found to predict their aspirations for their children.[77 87] Thus, better-educated parents tend to have even higher ambitions for their children, possibly as a result of a better understanding of the opportunities available and how to achieve them.[86] Children and young people's ambitions for a certain career pathway are inclined to be influenced by the career choices made by family members and other important adults in their lives.[86] The perspectives of the communities in which children and young people and their parents live help shape those aspirations along with the attitudes and beliefs of peer networks.[86] Understandings of opportunities, and their associated boundaries, tend to be conveyed unconsciously and influence attitudes to learning.[86 87 91]

Educational and career ambitions tend to change throughout childhood and adolescence, as a result of a growing understanding of what is possible and the opportunities available.[84] In the LSYPE, aspirations for further education were found to become less between the age of 14 and 16 years, particularly among young people living in the most disadvantaged circumstances.[83] Similarly, in the EPPSE (3–16+) study, when young people aged 14 years were asked about whether they expected to apply to university, differences across the income brackets were obvious.[85] As children become older, they are likely to become more aware of the financial and social challenges they face to reach their goals.[84 86] In response, they may lower their aspirations to match their perception of more realistic options.[84] Earlier decisions made about, for example, what subjects to study at school, can limit what is possible later on.[84]

4.3 Early learning and childcare

Before children start formal schooling around the age of five years, many are cared for in non-parental early learning and childcare settings. In Scotland, more than 90% of children take up their entitlement to attend pre-school from the age of three years.* [92] Attending pre-school has been found to be associated with better educational outcomes.[93] The quality of the early learning and childcare provision is also important.[3] In the EPPSE (3–16+) study young people who had attended pre-school were more likely to achieve five A*–C grades at GCSE compared to those who had not attended.[3 93] Going to a high-quality pre-school was found to be associated with more positive effects than attending a low-quality establishment or not attending.[3]

This topic is covered in more detail in two evidence reviews published by NHS Health Scotland. The first examines the impact of early learning and childcare provision on parents' outcomes. The second looks at the effect of the quality of early learning and childcare provision on children's outcomes.

4.4 School

The social environment within schools may play a role in mediating the relationship between children and young people's circumstances and educational outcomes.[2 94] There is review-level evidence that children and young people who attend a school with a positive school climate† are more likely to achieve more than might be expected based on the socio-economic background of the pupil and school.[94] Similarly, in the 2013/14 Health Behaviour in School-aged Children (HBSC) survey in England, feeling

* A pre-school education place is offered to all three- and four-year-olds as well as vulnerable two-year-olds.

† School climate is a complex concept that is not well defined. (Berkowitz R, Moore H, Astor RA and Benbenishty R. A research synthesis of the associations between socioeconomic background, inequality, school climate and academic achievement. *Review of Educational Research* 2017; 87(2), 425–69.) The term is used to capture loosely related factors such as respectful and supportive relationships and feelings of safety, inclusiveness and fairness. (Kidger J, Araya R, Donovan J and Gunnell D. The effect of the school environment on the emotional health of adolescents: A systematic review. *Pediatrics*, 2012. 129(5), 925–49.)

connected to the school and teachers was found to be linked with a range of positive educational outcomes.[95] The ratio of students to teachers was discovered to be significantly associated with perceptions of supportive teacher–student relationships; lower connectedness was reported when the number of students per teacher was higher.[95]

The socio-economic background of the school intake is shaped by the affluence of the school catchment area. In general, schools with larger proportions of disadvantaged children and young people tend to have lower levels of attainment overall.[96] In the PISA 2012 survey, on average across all the OECD countries taking part, a young person attending a disadvantaged school was 11 times more likely to be a low performer than a pupil attending an advantaged school, even after the socio-economic position of the individual's family was taken into consideration.[19] However, while having a higher proportion of children eligible for free school meals* in a school tends to predict poorer educational performances,[3] it is not inevitable. Audit Scotland found that some schools with higher number of pupils eligible for free school meals were performing similarly to schools with lower numbers,[96] which suggests that schools can make a difference.[97]

Schools with a mainly disadvantaged catchment area may face additional discipline challenges. Children from disadvantaged backgrounds are at increased risk of social, emotional and behavioural difficulties including hyperactivity, conduct and peer relationship problems.[18] In Glasgow City, researchers found that the rates of seven-year-old children who had a likely social, emotional or behavioural difficulty, as measured by the Strengths and Difficulties Questionnaire (SDQ), were more than three times greater for those living in the most deprived areas† compared to children living in the least disadvantaged areas.[98]

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* Families claiming certain social security entitlements are eligible to claim free school meals for their children. Eligibility for free school meals is often used as an indicator of a young person's family socio-economic circumstances.

† The measure of deprivation used in this study was the Glasgow Index of Multiple Deprivation, which is based on the Scottish Index of Multiple Deprivation, but takes into account the relatively high levels of deprivation in Glasgow city.

Teachers' assessment of school performance tends to be influenced by children's behaviour.[77] [99] Thus, children who behave in ways that are in line with school rules and expectations are more likely to be marked higher.[99] In addition, teachers' preconceptions may influence the way they judge children's performance.[100] In the MCS, teachers' assessments of reading and maths ability at age seven years was compared with children's performance tested independently.[20] Children from low-income families were less likely to be judged by teachers as being above average compared to their equally scoring peers from more affluent families.[20]

5. Conclusion

This paper has looked at how the circumstances in which children and young people live and learn contribute to inequalities in educational outcomes. This report has highlighted some of the challenges faced by children and young people living in low-income families that potentially hinder them from making the most of the opportunities offered by the education system. Parental income impacts on educational outcomes directly through the resources for learning available to children and young people and indirectly through its impact on parental mental health. However, many children and young people living in disadvantaged circumstances do well. Believing in their own ability and having parents that set high standards for behaviour and encourage learning by reading together as well as attending a school with a positive school climate have been identified as factors that can help mitigate the impact of living in a low-income household on educational outcomes. Nonetheless, education outcomes are not associated with any single characteristic of children and young people or their schools.[19] Over time a combination and accumulation of experiences in and exposures to the social and physical environments in which they are born, live and learn can enhance or hinder their educational attainment.[13] [19] [75] Parental income and education shape these environments.

5.1 Key findings

- Many children and young people living in disadvantaged circumstances do well. The quality of the social and physical environments that they experience as they grow up is key. A combination and accumulation of these experiences can enhance or hinder children and young people's educational outcomes. Parental income and education shape the social and physical environments.
- Parental income is important for educational outcomes. Lack of money can limit the availability of resources for learning as well as adversely affect the family social environment through the impact of financial vulnerability on parental mental health. Strong family relationships and supportive parenting can help mitigate the effects of living in disadvantaged circumstances on educational outcomes.
- Lower educational attainment has been found to be associated with aspects of children and young people's physical environment such as living in overcrowded housing, in an inadequately heated home and/or in a disadvantaged neighbourhood. Experience of food insecurity has been linked with poorer educational outcomes as well as emotional and behavioural problems.
- High aspirations for continuing on to higher or further education have been reported among parents and children across the spectrum of socio-economic backgrounds. Rather than an innate characteristic, aspirations are shaped by a broad range of influences including family, neighbourhood, school and wider social factors which interact in complex ways.
- The social environment within schools can play a role in mediating the relationship between children and young people's circumstances and educational outcomes. Children and young people attending a school with a positive school climate have been found to do better than might be expected based on their socio-economic background.

5.2 Local positive actions

Actions to tackle child poverty are twofold:

- Approaches to maximise household resources
- Strategies to mitigate and prevent the adverse effects of living in a low-income household.

The following section is based mainly on NHS Health Scotland evidence briefings published in the past six years and is not a comprehensive review of current evidence. More information about child poverty and adverse childhood experiences can be found on NHS Health Scotland's website. The Evidence for Action briefings that accompany the Scottish Public Health Observatory's (ScotPHO) health and wellbeing profiles give additional examples of positive action.

- Work in partnership with children and young people, their parents, carers and other family members to formulate, implement and evaluate approaches that prevent and mitigate the impact of living in poverty.[101] For example, building on initiatives like the Cost of the School Day project in Glasgow and the 1 in 5: Raising Awareness of Child Poverty project in Edinburgh to improve the understanding of the causes and impact of child poverty, and to look at what changes education services and schools could make to remove cost barriers and better support children from low-income families so that they are able to participate fully in school.
- Build on existing initiatives like Healthier Wealthier Children to develop comprehensive referral pathways that link welfare and money advice services with places, like schools, that parents of children and young people visit.[102] Encourage and support parents/carers to apply for Healthy Start vouchers, free school meals, clothing grants and the Educational Maintenance Allowance.[103]
- Work with local partners to improve the physical environment of children living in disadvantaged circumstances. Ensure families can access affordable high-quality housing that is energy efficient and

affordable to heat.[104] The Place Standard tool is one way that communities, public agencies and voluntary groups can find those aspects of a place that need to be targeted to improve people's health, wellbeing and quality of life. Access to safe, high-quality indoor and outdoor spaces, free of charge, where children can play freely and confidently with their peers is important for healthy social, emotional and physical development.[105]

- Support young children's social, emotional, and cognitive development by providing support for maternal mental health. Flexible provision of high-quality affordable childcare[103] [106] can help mothers to access employment, training, education and skills development opportunities.[103] [107]
- Ensure that services and initiatives are planned and delivered in proportion to need.[108] Children living in poverty do not necessarily live in areas of greatest deprivation classified by the SIMD*. Using a combination of both SIMD and eligibility for clothing grants and free school meals can help to identify children and young people eligible for initiatives targeted at children living in low-income households.[103]
- Support the joint learning and development of professionals (e.g. midwives, health visitors, GPs, nursery workers, school nurses, and teachers) that are in contact with children and young people, their parents and carers to understand the impact of poverty on children's health and wellbeing[109] and ensure that they have the knowledge and skills to deliver services that are sensitive to inequalities.[101] [110]

* Scottish Index of Multiple Deprivation.

5.3 Further information

- NHS Health Scotland: Health and wellbeing interventions in a school setting
- NHS Health Scotland: Child Poverty
- NHS Health Scotland: Adverse Childhood Experiences (ACEs)
- NHS Health Scotland e-learning: Child Poverty, Health and Wellbeing (free resource; requires registration)
- National Parent Forum of Scotland: Cost of the School Day Toolkit for Parent Councils
- Child Poverty Action Group in Scotland (CPAG): Resources for schools
- Treanor MC. Actions to prevent and mitigate child poverty in community planning partnerships. Edinburgh: What Works Scotland; 2017.
- Children's Parliament: "School should be a joyful place": Learning and school life in Scotland. A Children's Parliament Report. Edinburgh: Children's Parliament, 2017.

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Appendix 1: Method

Research question

How do social determinants of health contribute to inequalities in educational outcomes (including attainment)?

Search strategy

The search strategy was developed in discussion with NHS Health Scotland's Knowledge Services:

#1 Aspir* or Involve* or Literate or literacy or numerate or numeracy or Non-cognitive or cognitive or test or exam* or score

#2 attainment or Achievement or Outcome* or Perform* or Qualification* or Success* or Attend* or Absence or absent* or Engage* or engaging

#3 Education* or School* or Learn* or Academic

#4 Child* or Teen* or Adolescent or adolescence or Young people or Pupil* or student*

#5 Income* or Socio-economic or Socioeconomic or SES or class or Poverty or Depriv* or Disadvantag* or Migrant or Immigrant* or poor or ethnic* or race or asylum or minority

#6 #1 or #2

#7 #3 and #4 and #5 and #6

In order to make sure that the volume of literature identified was manageable in the time frame available for this review, the search was limited to finding the terms in the title and abstract. In addition, electronic database searches were limited to peer-reviewed papers published in English from 2007 onwards.

Using these search terms, the following health and education electronic databases were searched:
Medline, Embase, ASSIA, IBSS, Psych Articles, Public Health Database, PsychINFO, Psychology and Behavioral Sciences Collection, Sociological

Abstracts, ERIC, British Education Index, Child Development & Adolescent Studies, Education Abstracts, Professional Development Collection, Teacher Reference Center, Australian Education Index.

In addition, the search terms were used in 'Google Advanced' search engine to find any potentially relevant reports not published in the peer-reviewed literature. Further studies and papers were identified by examining the reference lists of relevant articles identified by the search. The primary focus was on reviews and longitudinal studies that examined the relationship between the circumstances that children and young people were born, grew up and lived in and their educational outcomes.

Selection process

The titles and abstracts were screened for potential inclusion. If studies reported an aspect of the circumstances of school-aged children and/or young people and reported an educational outcome, they were selected for further consideration. In addition, studies that reported measures of cognitive development around the age that children start school were included. In order that this review was as relevant as possible to the Scottish context, the focus of the longitudinal studies were those based in the United Kingdom (details in appendix 2).

Main study types

A systematic review is a form of research that attempts to collect all the relevant evidence to address a specific question or topic. Researchers use explicit and transparent methods to perform a thorough literature search and appraisal of the quality of individual studies. The findings are brought together so that conclusions about what is known and not known about a given question or topic can be drawn. Using evidence from systematic reviews reduces the risk that findings from individual studies are atypical and/or

biased. Thus, when review-level evidence is available, and has been carried out well, we can have greater confidence about the reliability of the findings.

A longitudinal study follows a group of individuals over a period of time, collecting information from the same people on more than one occasion.

Appendix 2: Descriptions of studies

The Avon Longitudinal Study of Parents and Children (ALSPAC), also known as Children of the 90s, is a birth cohort study, charting the health of 14,500 families in the Bristol area.

The Effective Pre-school, Primary and Secondary Education (3–16+) (EPPSE 3–16+) looked at the effectiveness of early years education. More than 3,000 children were recruited from 141 pre-school settings located in six local authority areas in England and assessed at the start of pre-school (at approximately 3 years old). Their development was monitored as they entered school until they made their post-16 education, training or employment choices. Children were assessed at the start of the study and on entering school at primary ages 6, 7, 10 and 11 and secondary ages 14 and 16. A sample of children with no pre-school experience was used as a comparison to the main study.

The Growing Up in Scotland (GUS) is a longitudinal research study, tracking the lives of children and their families in Scotland from the early years, through childhood and beyond. The study consists of three groups: Birth cohort 1 which consists of about 5,000 children born between June 2004 and May 2005; Birth cohort 2 which consists of about 6,000 children born between March 2010 and February 2011, and a child cohort which consists of about 3,000 children born between June 2002 and May 2003. Birth cohort 1 had information collected annually from the age of 10 months until they were about 6 years old and then every 2 years until they started secondary school. Birth cohort 2 had information collected when the children were 10 months, almost 3 years and almost 5 years. Further data collection has not been confirmed. The child cohort had information collected four times between the age of almost 3 years and almost 6 years. There are no plans to collect further information from this cohort.

The Health Behaviour in School-Aged Children (HBSC) study is a cross-sectional survey which examines young people's wellbeing, health behaviours and their social context. It is conducted in 44 countries and regions in Europe and North America, including Scotland, every 4 years. Information is collected from Primary 7, Secondary 2 and Secondary 4 pupils. In each country, about 1,500–2,000 young people in each age group take part.*

The Longitudinal Study of Young People in England (LSYPE), also known as Next Steps, follows the lives of around 16,000 people born in 1989–90. The study began in 2004, when the cohort members were aged 13–14, and has collected information about their education and employment, economic circumstances, family life, physical and emotional health and wellbeing, social participation and attitudes. The Next Steps data has also been linked to National Pupil Database (NPD) records, which include the cohort members' individual scores at Key Stage 2, 3 and 4.

The Millennium Cohort Study (MCS) is a research project following the lives of around 19,000 children born in the UK (about 2,000 born in Scotland) in 2000–01. The study has been tracking children through their early childhood years and plans to follow them into adulthood. It collects information on the children's siblings and parents. MCS's field of enquiry covers diverse topics such as parenting; childcare; school choice; child behaviour and cognitive development; child and parental health; parents' employment and education; income and poverty; housing, neighbourhood and residential mobility; and social capital and ethnicity.

The Programme for International Student Assessment (PISA) is a worldwide study carried out by the Organisation for Economic Co-operation and Development (OECD) every 3 years of 15-year-old school pupils' scholastic performance on mathematics, science, and reading. Its aim is to provide comparable data with a view to enabling countries to improve their education

* Child and Adolescent Health Research Unit. Scottish Health Behaviour in School-aged Children (HBSC) Study. Available at: http://cahru.org/research/hbsc-scotland. Accessed 15/01/18.

policies and outcomes. Around 3,000 pupils in Scotland took part in the survey carried out in 2015.

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6452 6/2018