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Scottish Study of Early Learning and Childcare: ELC Leavers (Phase 2) (Updated 2021)

CHILDREN, EDUCATION AND SKILLS

social research

Scottish Study of Early Learning and Childcare: ELC Leavers (Phase 2) Report

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Corrections

May 2021: The analysis in the section on Parental Wellbeing was initially published using raw SWEMWBS scores, rather than 'Rasch-transformed' scores as is advised under the WEMWBS licence. The analysis has been corrected so it is based on Rasch-transformed scores. Figures for parental SWEMWBS scores in the text on p68 and in Table 14 have been revised. This did not reflect errors in the underlying data or in any other results in the publication. We apologise for any inconvenience caused.

May 2021: An error was discovered in the coding of the variable for 'other types of childcare'. The analysis in the section on Additional Childcare has therefore been revised. Some figures for use of other childcare in the text on pp23-26, tables 1 and 2 and Figure 2 have been revised. This did not reflect errors in the underlying data or in any other results in the publication. We apologise for any inconvenience caused.

Note on early learning and childcare expansion and the Covid-19 pandemic, August 2020

The Scottish Study of Early Learning and Childcare (SSELC) is a longitudinal multi-phase research project established to evaluate the expansion of funded early learning and childcare (ELC) in Scotland. The ELC expansion programme will almost double the hours of funded ELC for all three- and four-year-olds, and eligible two-year-olds, to 1140 per year. This report outlines findings from the surveys and observations conducted as part of the second phase, from a baseline sample of four- and five-year-olds as they leave ELC to begin Primary 1.

The increase in the statutory funded ELC entitlement from 600 to 1140 hours was due to take effect from August 2020. SSELC post-expansion data collection was due to begin in November 2022, two years after all three- and four-year-olds, and eligible two-year-olds, were expected to start receiving 1140 hours of funded ELC per year. However, the expansion programme has been paused due to the Covid-19 pandemic. The Scottish Government and local authorities will agree an alternative implementation timetable once the full implications of the pandemic are understood.

As a result, all references to August 2020 have been removed from this report, and future data collection timetables will also be subject to review. An updated evaluation timetable for the remaining phases of SSELC will be confirmed in due course.

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Acknowledgements

We would like to thank all the parents, carers and ELC staff who gave up their time to participate in the surveys and observations, as well as the Care Inspectorate staff who carried out the observations of settings.

Executive Summary

Background

This report outlines findings from the second phase of the Scottish Study of Early Learning and Childcare (SSELC), a research project established to evaluate the expansion of early learning and childcare (ELC) in Scotland.

The expansion of funded ELC in Scotland was due to take effect from August 2020. Implementation of the programme has, however, been paused due to the wide-ranging impacts of the Covid-19 pandemic[1]. An alternative timetable for the ELC expansion will be agreed by the Scottish Government and local authorities once the full implications of the pandemic are understood. The timetable for completion of Phase 4-6 of the SSELC will also be affected by this change and an updated evaluation timetable will be confirmed in due course.

Once the expansion programme is rolled out, it will see the hours of funded ELC nearly double for all three-and four-year-olds, and eligible two-year-olds, to 1140 per year. The expansion seeks to achieve three long term outcomes:

1. Children's development improves and the attainment gap narrows;
2. Parents' opportunities to be in work, training or study increase; and
3. Family wellbeing improves through enhanced nurture and support.

The SSELC has been designed to evaluate whether the ELC expansion programme has achieved these objectives by measuring outcomes for children and parents and carers receiving the existing entitlement and comparing them to those who receive the increased entitlement. The aims of Phase 2, which focussed on children who were coming to the end of their time in ELC and were about to start primary school, were to gather:

- Robust baseline data on child outcomes for a random sample of four- and five-year-olds who were receiving 600 hours of funded ELC provision;
- Robust baseline data on parent outcomes linked to the above cohort of four- and five-year-olds; and
- Data and evidence on the characteristics of a sample of ELC settings also linked to the above cohort of four- and five-year-olds.

Methods

The sample in the study consisted of children aged between 4 years 3 months and 5 years 6 months who received up to 600 hours of funded ELC provision, and their parents. Participants were recruited via ELC settings in 30 local authorities. Settings providing 600 hours of funded ELC provision were selected at random

[1] https://www.gov.scot/news/early-learning-and-childcare-expansion-1/

from lists provided by each local authority, stratified by area deprivation and the number of four- and five-year-olds in attendance. Separate samples were drawn for settings in the most deprived areas and those in less deprived areas. Within each setting, up to 10 children were randomly selected and then invited to take part. The combination of these two random selections meant that all children across the 30 local authorities in deprived areas had an equal chance of selection, and all in less deprived areas had an equal chance of selection.

Data were gathered on children via a survey of parents / carers and a survey on the children's development undertaken by their ELC keyworkers (using the same cohort of children as the parent / carer survey). Data on the characteristics of ELC settings was collected via observations of ELC settings attended by sampled children. The two questionnaires were very similar to those used for two-year-olds in Phase 1 of the study, with adjustments made for the ages of the children. Fieldwork was conducted in May and June 2019. A total of 1,382 questionnaires were received from parents / carers and 1,846 from keyworkers across 223 settings. Observations were conducted in 150 settings.

Key findings

Characteristics of the cohort

- Half (50%) of the children in the cohort attended settings in the most deprived areas, although only 31% actually lived in the most deprived areas.
- One-in-five (20%) of those responding to the parent / carer survey were single parents, with the remaining four-fifths (80%) living in two-parent households.
- Slightly under half of the respondents to the parent / carer survey (44%) had a university degree or equivalent qualification. A further 23% had post-school qualifications, while 13% had Highers, Advanced Highers or equivalent, 16% had Standard Grades or equivalent and 4% had no formal qualifications.
- Twenty-two percent of children lived in households with an annual equivalised income[2] of less than £14,300 whilst 14% lived in households with an income of £49,400 or more. The remaining 64% had incomes between these ranges. This spread of incomes broadly corresponds with what would be expected from a nationally representative survey sample.
- Nearly all respondents were White (95%) and most spoke only English at home (90%).

Use of ELC

- Around half (47%) of families were using at least one provider of childcare (including both formal childcare from other nurseries or childminders and

[2] Income adjusted for the number of adults and children in the household, following OECD guidelines

informal, such as from grandparents) in addition to the nursery at which their child was registered for participation in the survey. The use of additional childcare was more common among couple parents (50%) than single parents (37%). It also rose as levels of deprivation decreased, from 37% in the most deprived areas to 57% in the least deprived.

- One-in-five (19%) of parents used multiple settings for formal childcare. Much more common was use of a single formal setting, in some cases topped up with informal childcare. Eighty-one percent of parents used a single formal setting. In half of these cases (41% of all cases) the only childcare received was the funded childcare. In the other half of these cases, this was topped up with either additional unfunded childcare at the same setting (16% of all cases), informal childcare (20% of all cases), or both (5% of all cases).
- Where funded ELC was topped up with unfunded ELC at the same setting, on average this roughly doubled the total hours at the setting to 30 hours per week. Similar levels were seen where funded ELC was topped up with informal childcare, where total hours from funded ELC plus informal childcare averaged at 32 hours per week.
- A third of parents (33%) mentioned using grandparents to look after their child. This represents more than three-quarters (81%) of those who used any additional form of childcare. Grandparents were much more commonly used by parents who worked than those who didn't (42% compared with 7%).
- Most children had been in at least one form of childcare before reaching the age of three. Of those children that had, more than half (56%) of families had used grandparents, and a third (33%) had used a private or workplace nursery or crèche.
- Nearly half (47%) of families lived within five minutes of their ELC provider. A higher proportion of those living in rural areas or small towns lived this close (57%, compared with 43% of those living in urban areas).
- All but a few parents had engaged in at least one activity at their child's nursery. Nearly all parents had visited their child's room (93%) and discussed their child's progress with his or her keyworker or another member of staff (97%). Large proportions had also attended a parents' evening or information event (86%).
- Attending ELC was generally recognised as being more beneficial to the child than to the parents. Nearly all parents said that it was good for their child to interact and socialise with other children (99%), that it was good for their independence / confidence (97%), that it prepared them for school (97%) and that they enjoyed it (94%). Two-thirds (64%) of parents said that having their child in nursery enabled them to work, study or train.

Child health and development

- Three-quarters of parents (76%) ranked their child's health as being 'very good', and a further one-fifth (21%) ranked it as being 'good'. Single

parents were less likely to rate their child's health as 'very good' than those from two parent households (65% compared with 78%).

- One-in-ten children (10%) had a longstanding illness or health condition. Of these children, 15% of parents said that the longstanding illness limited the child 'a lot'.
- The majority of parents had no concerns about how their child talks (86%) or how they understand (96%). Parents were more likely to have concerns about boys than girls on both matters. For example, 17% of parents of boys were concerned about how their child talks compared with 11% of parents of girls.
- More than half (57%) of children had looked at books at home every day in the previous week. Half (51%) had recited nursery rhymes / sung songs every day and 42% had played at recognising letters, words, numbers and shapes every day. A quarter (25%) of children had done painting or drawing at home every day.
- Children in single parent households were less likely to have looked at books and read stories than children in couple parent households. Thirty-nine percent of those in single parent households had read books / looked at stories every day in the last week, compared with 61% of children in couple parent households. Those living in deprived areas were also less likely to have looked at books every day: 41% of children living in the most deprived areas had done so, compared with 61% of children living in other areas.

Children's keyworkers at ELC settings were asked to complete observations of the child's development using the Ages and Stages Questionnaire (ASQ). The ASQ provides a structured assessment of a range of developmental domains. There are 30 items split into five different domains: Communication, gross motor, fine motor, problem solving and personal-social. Each domain produces a summary score which can be used to indicate whether the child's development is perceived to be on schedule, needs monitoring or requires further assessment.

- On each of the five ASQ domains, the majority of children (over 80%) had development deemed to be on schedule, as may be expected for a nationally representative sample.
- Reflecting trends commonly found in child development data, girls were more likely be on schedule than boys for all five domains. The difference was largest for the fine motor domain (92% of girls on schedule compared with 73% of boys).
- Children living in the most deprived areas were less likely to be on schedule than those living in other areas in three of the five domains - communication, fine motor and problem solving. The difference was again largest in the fine motor domain where 76% of children living in the most deprived areas were on schedule compared with 85% of those living in other areas.

- A number of other factors were associated with children having development deemed to require monitoring or further assessment on at least one of the domains.
- Regression analysis was used to identify the key drivers of not being on schedule for at least two domains. This found that the most significant factors were being a boy and having a long-term health condition, followed by level of parental education. Being in a home where English is not the main / only language was also significant, as was having two or more siblings. When controlling for these variables, other factors, such as area deprivation, showed no independent association with delays in development on at least two domains.

Children's keyworkers were also asked to complete observations of the child's development using the Strengths and Difficulties Questionnaire (SDQ). The SDQ comprises 25 questions about a child's behaviour. Responses can be combined to form a measure of 'total difficulties', plus five different subscales measuring aspects of the child's development: emotional symptoms; conduct problems; hyperactivity / inattention; peer relationship problems; and prosocial behaviour. Within each domain (with the exception of the prosocial one) children's scores can be put into the following categories: 'close to average', 'slightly raised', 'high' and 'very high', with 'very high' indicating multiple behavioural difficulties identified. For the prosocial domain higher scores indicate more positive behaviour, so categories of 'slightly lowered', 'low' and 'very low' are used.

- Again, the majority of children (85%) scored close to average on the SDQ total difficulties scale. For the separate domains, the proportion scoring close to average ranged from 78% on the hyperactivity domain to 92% on the prosocial behaviour domain.
- Across all the SDQ domains, with the exception of emotional symptoms, girls were more likely to score close to average than boys. For the total difficulties score, 91% of girls were close to average compared with 79% of boys, with 7% of boys scoring 'very high' compared with 2% of girls.
- Area deprivation was not significantly associated with a child's SDQ total difficulties score, nor was it for any of the individual domains.
- Children's scores on each of the ASQ domains were strongly correlated with their SDQ total difficulties score. Those who had an SDQ score that was close to average were much more likely to have development deemed to be on schedule in the ASQ domains than those who scored 'very high' on the SDQ total difficulties scale.
- Several other factors were identified as being associated with raised scores on the total difficulties scale.
- Regression analysis was used to identify the key drivers of having a raised / high total difficulties score. This found that the most significant factors were being a boy, the child having a long-term health condition, and having a parent with low mental wellbeing. Neither area deprivation,

nor any other factor showed a statistically significant association once other factors were taken into account.

Parent outcomes

- Around two-thirds of parents (mostly mothers) were in work, with 31% reporting they worked 30 or more hours a week and 38% working less than 30 hours a week.
- Thirty-eight percent of working parents agreed they would work more hours if they could afford high quality childcare; the same proportion disagreed. Those with a lower household income and single parents were more likely to agree with the statement than those on higher incomes / in couple households.
- Twenty-eight percent of non-working parents agreed that “a lack of affordable, convenient, good quality childcare is one of the main reasons I’m not working at the moment”, while 40% disagreed. Those on lower incomes were more likely to agree.
- Most parents reported their own health to be good (42%) or very good (43%). Single parents and parents with lower levels of education tended to report worse health.
- Eighteen percent of parents reported that they had a physical or mental health condition or illness lasting or expected to last for 12 months or more. Fourteen percent of those with a longstanding condition reported that it limited their activities a lot. Three-fifths (61%) of those with a condition said that it affected their mental health or exhibited as social, emotional or behavioural issues.
- Parents were asked how satisfied they were with their life as a whole nowadays, on a scale of 0 to 10. More than a third (37%) of parents rated their life satisfaction at 9 or 10, while a further third (30%) scored themselves an 8. Only 8% rated their life satisfaction as 5 or below.
- Single parents were more likely to be dissatisfied with their life (19% rating it as 0 to 5) than couple parents (6%). Dissatisfaction also fell with increasing income - 15% of those in the lowest income group rated their life satisfaction between 0 and 5 compared with less than 1% of those in the highest income group.
- Three-quarters of parents (75%) said that they were coping well as parents most or all of the time with only 1% admitting they were not coping well for much of the time. Confidence in how they were parenting rose with increasing levels of education and income. It was also higher in two parent households.
- The majority of parents said that as a result of having their child in nursery they had been able to work or look for work (59%), and that they had been able to think about what they might do in the future (54%). A third (32%) had used the time freed up by having their child in nursery to study or improve work related skills, while a slightly larger proportion (39%) had used the time to care for other family members. Just over a third agreed

that they were feeling less stressed because their child was in nursery (38%) and that they were feeling happier (35%).

Characteristics of ELC

Reviewers from the Care Inspectorate conducted observations of 150 settings using the Early Childhood Environment Rating Scale (ECERS-3). This is a widely recognised and highly regarded instrument designed for use in settings where most children are aged between three and five. The ECERS tool was used to provide a snapshot of the everyday experiences of children in their ELC settings and to generate data in order to control for the effect of settings on children's outcomes in the study. The ECERS tool is not the only way of assessing quality and is best considered in conjunction with other measures such as the Care Inspectorate ratings, which provide a wider measure of the quality of practice and policy in the setting and have also been found to be related to children's outcomes in Scotland.

ECERS-3 comprises 35 items across 6 different subscales: space and furnishings; personal care routines; language and literacy; learning activities; interaction and programme structure.

- Settings scored highest on the 'interaction' subscale, with 79% scoring 5 or above (out of a maximum of 7).
- The majority of settings also scored at this level on the 'personal care routines' (65%), the 'space and furnishings' (59%) and the 'programme structure' (59%) subscales. On two of these subscales ('space and furnishings' and 'learning activities') no settings scored the maximum 7, and of the other four the highest proportion achieving the maximum, indicating 'excellent' on all items, was 10%.
- On the 'language and literacy' subscale only 29% of settings scored 5 or above. Scores were lowest on the 'learning activities' subscale, with only 7% of settings scoring 5 or above, and 33% scoring below 3.

Introduction

Background

This report outlines findings from the surveys and observations conducted as part of the second phase of the Scottish Study of Early Learning and Childcare (SSELC), the research project established to evaluate the expansion of early learning and childcare (ELC) in Scotland.

The ELC Expansion Programme

The current expansion programme follows a commitment from Scottish Government to almost double the hours of funded ELC for all three- and four-year-olds, and eligible two-year-olds, to 1140 per year.[3] This increase follows a number of smaller expansions in the past decade. Parents and carers in Scotland have had the opportunity to use funded ELC since 2002: initially 412.5 hours per year which was then increased to 475 hours in 2007. In 2014 the Children and Young People (Scotland) Act 2014 increased funded ELC to 600 hours per year for all three- and four-year-olds and eligible two-year-olds who are looked after, the subject of a kinship care order or a guardianship order, or whose parents are in receipt of one or more qualifying benefits[4].

The expansion to 1140 hours of government-funded ELC provision is intended to support children across Scotland, particularly the most disadvantaged. This change seeks to achieve three principal outcomes:

1. Children's development improves and the attainment gap narrows;
2. Parents' opportunities to take up work, training or study increase; and
3. Family wellbeing improves through enhanced nurture and support.

Local authorities are responsible for implementation and delivery of funded ELC to their local communities. They have flexibility to determine the most appropriate way to phase in the expanded entitlement in their local area as they build capacity.

The Scottish Study of Early Learning and Childcare

The SSELC has been designed to evaluate whether the ELC expansion programme has achieved the above objectives by measuring outcomes for children and parents receiving the existing entitlement and comparing them to those who receive the increased entitlement. The overarching evaluation questions are based on the Theory of Change set out in the Evaluability Assessment published by NHS

[3] Scottish Government (2016) A Blueprint for 2020: The Expansion of Early Learning and Childcare in Scotland – Quality Action Plan, Edinburgh: Scottish Government.

[4] More information on the eligibility criteria for two-year-olds is available at: https://www.mygov.scot/childcare-costs-help/funded-early-learning-and-childcare/

Health Scotland in 2017[5]. This Theory of Change is based on the principles of Getting It Right For Every Child (GIRFEC). Existing sources of information and reporting processes – for example National Statistics publications such as the ELC Census and Scottish Household Survey, and Care Inspectorate and Education Scotland inspection data and thematic inspection focus areas – will be used alongside the SSELC to consider the contribution and effectiveness of the ELC programme.

Specifically, the SSELC has the following overarching aims:

- To assess the extent to which the expansion from 600 hours to 1140 hours has improved outcomes for children, particularly those at risk of disadvantage, between the ages of two and five.
- To assess the extent to which the expansion from 600 hours to 1140 hours has closed the gap in child development outcomes between children who are most and least advantaged between the ages of two and five.
- To assess the extent to which the expansion from 600 hours to 1140 hours has improved outcomes for parents, particularly parents of children at risk of disadvantage.
- To assess the extent to which the expansion from 600 hours to 1140 hours has increased family wellbeing, particularly for families in disadvantaged circumstances[6].

To evaluate the impact of the expansion programme, the study has been designed to collect data across the six phases outlined below, with full findings being published after the conclusion of Phase 6. **Phases 1, 2 and 3** have collected baseline data on the outcomes of children accessing **600 hours** of funded ELC and their parents and were completed before the Covid-19 pandemic:

- **Phase 1** – November 2018
  - Data collected on eligible two-year-olds as they begin ELC
- **Phase 2** – May/June 2019
  - Data collected on four- and five-year-olds as they leave ELC to begin Primary 1
- **Phase 3** – November 2019
  - Follow-up with the same group of eligible two-year-olds after one year in ELC

[5] NHS Health Scotland (2017) Evaluability assessment of the expansion of early learning and childcare: http://www.healthscotland.scot/publications/evaluability-assessment-of-the-expansion-of-early-learning-and-childcare.

[6] Broadly, family wellbeing in the context of ELC is considered to be a combination of children and parents' health and well-being, and the ability of parents to undertake suitable parenting and activities that may contribute to the long-term prosperity of the family unit.

    - Data collected on three-year-olds as they begin ELC

Phases 4, 5 and 6 will collect data on the outcomes of children accessing **1140 hours** of funded ELC and their parents. These phases will be rescheduled in line with the new timetable for the expansion to 1140 hours

- **Phase 4** – Date to be confirmed
    - Data collected on eligible two-year-olds as they begin ELC
- **Phase 5** – Date to be confirmed
    - Data collected on four- and five-year-olds as they leave ELC to begin Primary 1
- **Phase 6** – Date to be confirmed
    - Follow-up with the same group of eligible two-year-olds after one year in ELC
    - Data collected on three-year-olds as they begin ELC

Findings from Phase 1 were published in August 2019[7]. The focus of the second phase being reported here (Phase 2) was on children in their final term of ELC provision before starting Primary 1 (P1). Data were gathered on four- and five-year-old children who had received 600 hours of funded ELC provision in their last year at the setting.

The aims of Phase 2 were:

- To gather robust baseline data on child outcomes for a nationally representative sample of four- and five-year-olds in both deprived and non-deprived areas who were receiving 600 hours of funded ELC provision.
- To gather robust baseline data on parent outcomes linked to the above sample of four- and five-year-olds.
- To gather data and evidence on the characteristics of a sample of ELC settings linked to the above sample of four- and five-year-olds.

The results from Phase 2 will contribute to a baseline for assessing the impact of expanded ELC provision that will be covered in later phases of the evaluation. In particular, the study design will enable an assessment of whether the gap in child development outcomes has decreased following the expansion in hours. Consequently, this report's focus is mainly descriptive, providing a general summary of findings from the data collected and identifying some basic relationships between variables. The report is not intended to provide a detailed consideration of the relationship between use of funded ELC and child or parent outcomes.

[7] https://www.gov.scot/publications/scottish-study-early-learning-childcare-phase-1-report/

The data used in this report cover a wide range of parental and child outcomes. The specific outcomes of interest were:

- Child
  - Social, emotional and behavioural development
  - Cognitive and language development
  - Physical and mental health and wellbeing
  - Home learning activities
- Parent and family
  - Uptake of employment, training or study
  - Physical and mental health, and health behaviours
  - Parenting self-efficacy and home environment
  - Engagement in their child's learning and development

With regards to information about the child, developmental outcomes are presented using data from ELC keyworker observations which utilised the Ages and Stages (ASQ)[8] and Strengths and Difficulties (SDQ)[8] Questionnaires. These are age-relevant versions of questionnaires which are used throughout Scotland by Health Visitors to capture information on parental concerns about their young children in relation to development. Parent-report information was also collected on the presence of developmental risk factors – such as sleep patterns and breastfeeding – and on the child's general health and long-term illnesses.

The report also provides baseline data on the characteristics of the ELC provision experienced by the child, using observational data on the quality of the ELC setting. Finally, it explores how parents use their ELC provision, presenting information about funding and perceived accessibility as well as details on their use of other forms of childcare.

By providing the necessary baseline figures for the evaluation of the ELC expansion programme in Scotland, this report is an integral component of the overall research project. Although the results presented here are primarily descriptive, with detailed analysis beyond the scope of the report, these baseline figures will be vital for determining later whether this significant policy programme has delivered the outcomes as intended.

Methods

Sampling

The sample consisted of children aged between 4 years 3 months and 5 years 6 months[9] who would be starting P1 in August 2019 and who were receiving up to

[8] Further information on these instruments is provided in the relevant section of the report.

[9] Those aged above 5 years 3 months were those who had deferred entry into primary school.

600 hours of government-funded or local-authority-funded ELC provision, and the parents of those children. Participants were recruited via ELC settings in 30 local authority areas.

Within those local authorities still offering 600 hours of funded ELC and able to participate, a two-stage, 'cluster' sampling approach was then taken in order to identify the sample: the first stage involved the selection of settings and the second stage involved the selection of children within settings. Up to 10 children were selected within each sampled setting. To ensure data was collected from a large enough sample of children living in deprived areas, settings in the 20% most deprived areas (based on SIMD score) were deliberately oversampled. More details of the sampling process are provided in Appendix B.

Data collection

Data were gathered on children in the cohort via three methods: a survey of parents / carers; a survey of the children's ELC keyworkers (primarily to measure child development) and observations of ELC settings attended by sampled children carried out by Care Inspectorate inspectors[10].

Parents were recruited by ELC staff and provided with information about the study before being asked to complete a paper self-administered questionnaire that collected a wide range of information about themselves, their child and their household. Parents were also asked for their permission for the child's keyworker to complete a questionnaire about the child's development. This largely consisted of the Ages and Stages (ASQ)[11] and Strengths and Difficulties (SDQ)[11] questionnaires but also collected information about the number of hours the child attended the ELC setting in the previous week.

Fieldwork was conducted in May and June 2019. Response rates to the surveys are not easy to estimate because information about the eligibility of every setting was not available. Questionnaires were sent to 345 ELC settings and at least one questionnaire was returned from 223 of these. Many of the other 122 reported that they were not eligible for inclusion in the sample. A total of 1,382 questionnaires were received from parents / carers and 1,846 from keyworkers. This gave a total of 1,318 paired questionnaires, 666 from settings in deprived areas and 652 from settings in non-deprived areas, exceeding the target of 600 in each. Nearly all participating settings had 10 or more eligible children, so response rate among keyworkers in these settings was around 83%, while for parents / carers it was around 62%.

Nearly all the parent / carer questionnaires (93%) were completed by the child's mother or a female carer within the household, so where the terms "parent" or

[10] Note that inspectors were acting as observers and not in their regulatory capacity, and used a different tool in their observations than would be used for a formal quality grading.

[11] Further information on these instruments is provided in the relevant section of the report.

“parent / carer” are used throughout this report, they refer mostly to the mother or main female carer within the household.

Observations were conducted of 150 participating ELC settings using the Early Childhood Environment Rating Scale (ECERS-3). This is a widely recognised and highly regarded instrument designed for use in settings where most children are aged between three and five. It provides an observational measure of the quality of ELC settings for pre-school children across six domains: space and furnishings, personal care routines, language and literacy, learning activities, interaction and programme structure, as well as other observations around numbers of children and staff and access to outdoor space.

Observations were conducted by Care Inspectorate staff seconded to the study and involved a single visit lasting between 2 and 3 hours. It was emphasised to ELC setting managers and staff before and during these observations that they were not formal inspections of the kind routinely undertaken by the Care Inspectorate.

Data analysis

One of the primary purposes of the ELC expansion programme in Scotland is to improve child developmental outcomes and to provide more parents with the opportunity to take up work, study or training if they wish to. These are desired outcomes for all parents and children, but especially for those from disadvantaged backgrounds. Where there are identifiable and interesting relationships between variables such as area deprivation and child or parental outcomes these are outlined as far as possible in the report. Any discussion of area deprivation within the report findings is based on the Scottish Index of Multiple Deprivation (SIMD) ranking of the child’s home address. Note that this is not necessarily the same as the SIMD ranking of the ELC setting, which was used in drawing the sample and producing survey weights. Additional analysis of subgroups is included in the separate annex tables. More details of the data analysis conducted and the weighting of survey data are included in Appendix B.

Reporting conventions and statistical significance

Percentages are reported to the nearest whole number. However, as this is a sample survey, these figures are an estimate of the true figures, and so should not be interpreted as being totally precise. A test for statistical significance allows us to tell whether two percentages we wish to compare are actually different in the population, given the amount of uncertainty we are prepared to accept in our sample. All comparisons reported in the text have been tested for statistical significance, although levels of statistical significance are not reported. Where a difference is noted in the text, this difference is statistically significant at the 5% level – that is, we can be at least 95% confident that the difference really exists and is in the direction, if not exactly the magnitude, stated. Differences which are not statistically significant are generally not reported in the text unless it is considered noteworthy that no difference can be identified in the data between the groups of concern.

In the tables a dash (-) signifies no cases fall into the particular category, whereas a zero (0) signifies at least one case falls into that category, but less than 0.5% of all cases.

Child, parent and household characteristics

Characteristics of the cohort

The cohort was designed to be nationally representative of four- and five-year old children in their final term of 600 hours of state-funded ELC provision (and their parents / carers) when the data are weighted[12]. ELC settings in the most deprived areas were deliberately oversampled, so unweighted data are only representative of those attending settings in deprived areas and those attending settings in other areas separately. While half (50%) of children in the cohort[13] attended settings in the most deprived areas[14], only 31% actually resided in the most deprived areas. Figures in this section are based on unweighted data, while for the rest of the report, figures taken from the keyworker or parent questionnaire data have been weighted.

One-in-five (20%) of those responding to the parent / carer survey were single parents[15], with the remaining four-fifths (80%) living in two-parent households. Eighteen percent of the children in the sample lived with just one adult (aged 16 or above[16]), while 76% lived with two adults and 6% with three or more. Twenty-two percent were the only child aged under 16 in the household, while 53% had one sibling aged under 16, 20% had two and 5% had three or more.

Household incomes were distributed fairly equally across the ten equivalised income deciles[17], with the exception of the top decile[18]. Twenty-two percent of children lived in households with an annual income of less than £14,300 (the bottom quintile) whilst 14% lived in households with an income of £49,400 or more (the top quintile). The remaining 64% had incomes between these ranges**.**

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[12] The survey weight adjusts the data to compensate for oversampling of settings in deprived areas as well as non-response bias related to the size of the setting, the local authority and the age and gender of the child

[13] For whom a parent / carer questionnaire was completed

[14] The most deprived quintile, according to the Scottish Index of Multiple Deprivation

[15] Including single foster parents and single grandparent households

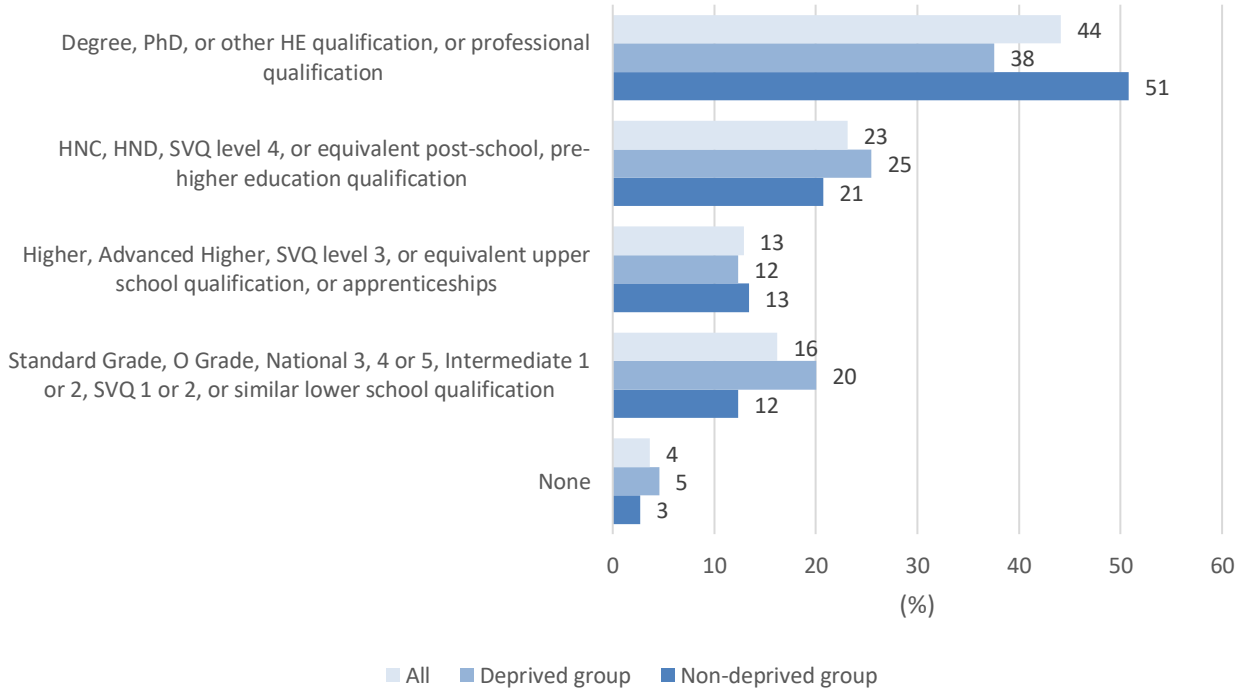
[16] Including parents, grandparents, older siblings and other adults

[17] Equivalised household income adjusts household income according to the typical income requirements for the number of people in the household. The OECD adjustment has been used in this case, where household income is divided by a household size factor, which is the sum of 0.67 for the first adult in the household, 0.33 for each subsequent adult or child aged 14 or above, and 0.20 for each child aged 13 or below. Cut points for the equivalized income deciles have been taken from a national survey of people in households in Scotland, the Scottish Health Survey 2018.

[18] The methodology used for calculating equivalised income does not allow larger households to be placed in the top income decile, even if they reported an income in the top income bracket of greater than £78,000 per annum. The low figure for the top decile (1%) is therefore potentially an artefact of the methodology, rather than a reflection of the true proportion of high-income households in the sample.

Levels of education among respondents to the parent / carer survey were as would be expected in a nationally representative sample of parents of young children in Scotland. Forty-four percent had a university degree or equivalent qualification and 23% had other post-school qualifications whilst 13% had Highers, Advanced Highers or equivalent and 16% had Standard Grades or equivalent. Four percent of parents had no formal qualifications. Similar studies of parents, such as Growing Up in Scotland show a slightly higher proportion of parents of young children having a degree; the figure here is lowered by the oversampling of those in deprived areas. Figure 1 shows highest level of education for those from the deprived and non-deprived groups of the sample separately. As the graph shows, 38% of those whose children attended a setting in the most deprived areas had a degree, compared with 51% of those whose children attended settings in other areas. This contrast is starker when making comparisons based on the parents' home addresses, with 22% of those living in the most deprived quintile having a degree, increasing steadily to 76% in the least deprived quintile.

Figure 1: Highest level of education of respondent



Base: All respondents (parent survey, unweighted)

Nearly all respondents (95%) were White: 83% reported themselves to be of White Scottish origin, 7% White Other British and 5% White non-British. The remaining 5% reported themselves to be of non-White ethnic origin, similar to the 4% recorded in the 2011 Census[19].

Most respondents (90%) spoke only English at home, while 8% used both English and another language. Only 1% did not use English at home.

[19] Source: https://www.scotlandscensus.gov.uk/ethnicity-identity-language-and-religion

Use of ELC

Formal ELC provision

Both the parent and the keyworker questionnaires asked about funding for the child's ELC provision. The parent questionnaire asked whether all of the child's time at the setting was paid for, and the keyworker questionnaire collected more detailed information about registered hours which were funded through their statutory entitlement, through discretionary funding from their local authority and self-funded, as well as actual hours attended. Analysis in this section (and subsequent sections on child health and development and parent outcomes) is based on weighted data.

Almost three-quarters (72%) of parents / carers reported that all of the time the child spent at the setting was funded through their statutory entitlement. Apparent differences by income and area deprivation were not statistically significant. However, when the respondent (generally the mother) was in paid employment, they were more likely to report having to pay for some of the time (34%, compared with 11% of those not in employment. See Table C1 in Appendix C).

The vast majority (89%) of parents took their full allocation of statutory funding[20] at one setting. On average, children were registered for 15.6 funded hours each week, rising to 18.6 when unfunded hours were included. Eleven percent were registered for fewer than 15 funded hours per week and 9% for more than 16.25 hours[21]. Including unfunded hours, 29% of children were registered for more than 16.25 hours, including 8% who were registered for 30 hours or more. Parents not in work had a slightly higher average number of funded hours than those in work (16.7 compared with 15.3) perhaps reflecting the additional discretionary funding that some local authorities may provide for children and families in greater need. The reverse was true for total hours, with an average of 17.2 total registered hours for children of parents who are not in work, compared with 19.4 hours where the parent (mother) is in work.

Additional childcare

In the parent survey, nearly half (47%) of parents[22] reported using at least one other provider of childcare (including both formal childcare from other nurseries or childminders and informal, such as from grandparents) in addition to the nursery at

[20] Recorded in the keyworker questionnaire as at least 15 hours of government or local authority funding per week. Distinctions between government and local authority (referred) funding have not been made in the analysis.

[21] Depending on the setting, the annual statutory entitlement of 600 hours worked out as between 15 and 16.25 hours per week. Some children received discretionary funding from their local authority on top of this, while others did not take their full allocation.

[22] Calculated from parent survey data alone, and hence slightly different from figures shown in Table 1. The difference is further exaggerated as Table 1 includes additional childcare only where a positive number of hours per week are mentioned. Some respondents reported using particular forms of childcare but for zero hours a week, possibly because of the lack of a regular pattern.

which their child was registered for participation in the survey. Table 1 shows data from the parent and child surveys combined, and hence figures differ slightly from those produced from parent data alone. This shows that one fifth (19%) of parents used multiple settings for formal childcare. Much more common was use of a single formal setting, in some cases topped up with informal childcare. Four fifths (81%) of parents used a single setting. In half of these cases (41% of all cases) the only childcare received was the funded childcare. In the other half of these cases, this was topped up with either additional unfunded childcare at the same setting (16% of all cases), informal childcare (20% of all cases), or both (5% of all cases).

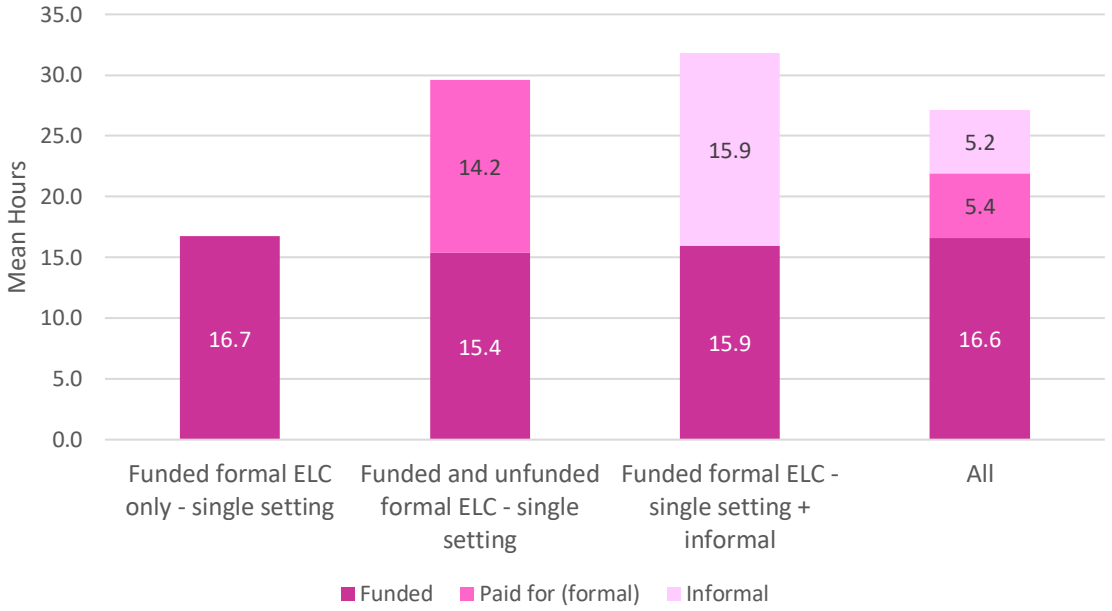
Table 1: Uses of multiple forms of childcare provider

	All
	%
Funded formal ELC only - single setting	41
Funded formal ELC only - multiple settings	1
Funded and unfunded formal ELC - single setting	16
Funded formal ELC - single setting + informal	20
Funded formal ELC - multiple settings + informal	1
Funded and unfunded - single setting + informal	5
Funded and unfunded formal ELC only - multiple settings	7
Funded and unfunded formal ELC - multiple settings + informal	10
Unweighted base	*884*
Base: All respondents (for whom valid data was provided on hours of childcare in both keyworker and parent survey, weighted)	

Figure 2 shows the average hours of childcare provided each week for the three main combinations identified: funded ELC in a single setting only; both funded and unfunded ELC in a single setting; and funded ELC in a single setting topped up with informal childcare, as well as for all children[23]. On average this shows that children are in childcare for around 27 hours a week, comprising 17 hours of funded formal ELC, 5 hours of unfunded formal ELC, and 5 hours of informal childcare. The overall figures, however, mask the reality for most families that either they receive the funded ELC only, averaging around 17 hours per week, or that they top this up with either unfunded childcare at the same setting, to an average of 30 hours a week, or informal childcare, to an average of 32 hours a week.

[23] The total for all children includes formal childcare across multiple settings, hence differ slightly from those quoted earlier taken from the keyworker questionnaire only.

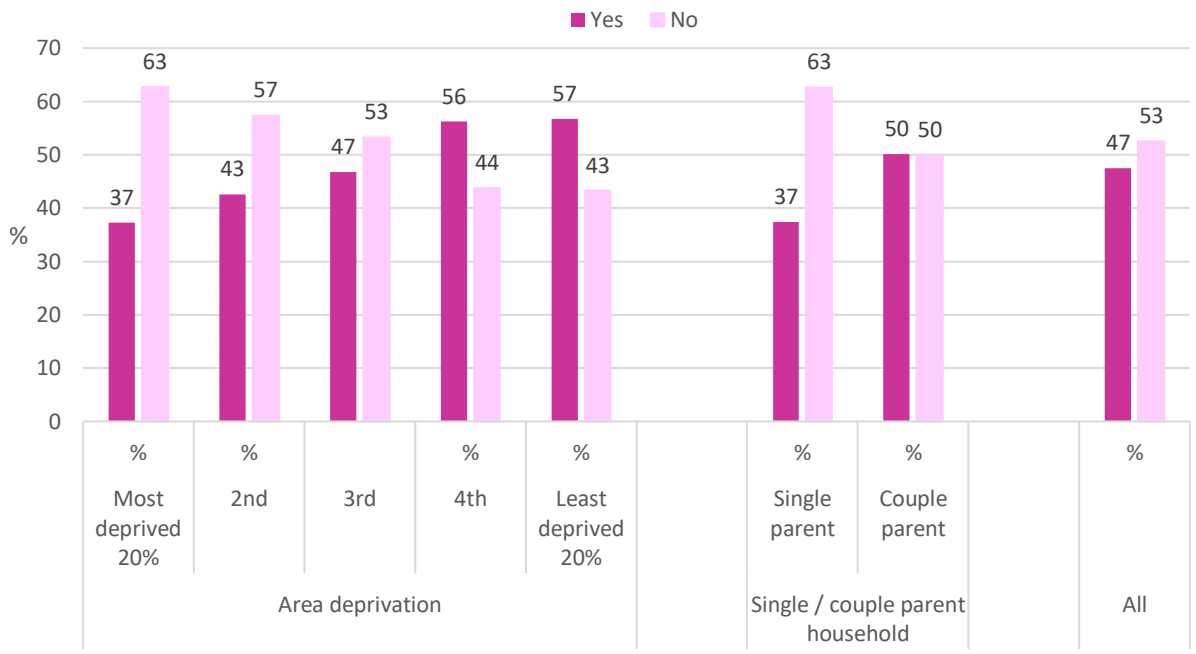
Figure 2: Mean hours of funded and unfunded ELC and informal childcare for the three most common childcare arrangements



Base: All respondents (for whom valid data was provided on hours of childcare in both keyworker and parent survey, weighted)

Returning to data from the parent questionnaire, as shown in Figure 3, the use of additional childcare (from a provider other than the one where the questionnaire was handed out) was more common among couple parents (50%) than single parents (37%). It also increased as levels of deprivation decreased, from 37% in the most deprived areas to 57% in the least deprived.

Figure 3: Whether respondent is using other childcare by area deprivation and household type



Base: All respondents (parent survey, weighted)

Table 2 shows the proportions of parents using each of the different types of childcare they were asked about. While 55% of parents did not use any childcare other than the ELC provision already discussed[24], 29% used one additional type of childcare and 17% used two or more additional types. A third of parents (33%) mentioned using grandparents to look after their child. This represents around three-quarters of those who used any form of childcare in addition to the provision previously discussed. Much smaller proportions used other forms of childcare, the largest of which were childminder (10%), private or workplace nurseries (6%) and other relatives (i.e. other than grandparents, 5%). Grandparents were much more commonly used by those in work than those not in work (42% compared with 7%). The use of grandparents for childcare was also associated with decreasing levels of area deprivation, rising from 24% of parents in the most deprived areas to 44% in the least deprived. The pattern for income was slightly less clear; 16% of parents in the lowest income quintile reported using grandparents, rising to 50% of those in the second highest quintile, and then falling to 39% of those in the highest income quintile (see Table C2 in Appendix C). Those in two-parent households were more likely to take advantage of grandparents for childcare than those in single-parent households (37% and 16% respectively).

[24] The 55% reported here differs from the 53% reported in Figure 3 because some parents stated that they used additional childcare but did not report using any of the types of childcare listed in Table 2. Both figures are a correct interpretation of the data. One reason for the difference may be that respondents answered the first question including ad hoc arrangements for childcare but reported zero hours a week for all of the listed types of childcare because there was no regular pattern.

Table 2: Other types of childcare used

	All
	%
None of the below	55
Grandparents	33
Childminder	10
Private or workplace crèche, nursery, playgroup or pre-school	6
Another relative	5
Local Authority crèche, nursery, playgroup or pre-school	3
Ex-spouse or partner	3
Friend or neighbour	2
Nanny or babysitter	1
Community or voluntary crèche, nursery, playgroup or pre-school	1
Other person	0
Unweighted base	*1,373*
Base: All respondents (parent survey, weighted)	

On average, parents reported an additional 8.6 hours of childcare a week outside of the nursery where the child was registered for participation in the survey, 0.9 hours of which were funded. Among only those who used additional childcare, the mean number of additional hours was 19.1.

Following on from the childcare questions, parents were asked how they felt about the amount of support / help they got with childcare from family or friends outside their household. Two-thirds (69%) said they got enough support, while 12% said they did not get enough, 11% did not get any at all, and 8% said they did not need any support. There were no significant differences in these figures by area deprivation or household type.

Previous use of childcare

Parents were also asked about types of childcare their child received before the age of three. Most children had been in at least one form of childcare before reaching that age[25]. Of those families that had used childcare, more than half (56%)

[25] It is not possible to give an exact figure, as “none” was not an explicit answer option. 9% of parents ticked none of the options, but we cannot say whether this was because they had not used any form of childcare or because they had chosen not to answer the question. Subsequent analysis of this question is around those who had mentioned at least one form of childcare.

had used grandparents, and a third (33%) had used a private or workplace nursery or crèche. As shown in Table 3, smaller proportions had used other types of nursery (local authority,11%; voluntary, 6%) or other individuals (including childminder, 15%; ex-partner, 9%; and other relatives, 16%).

Table 3: Types of childcare used prior to the age of three

	All
	%
Grandparents	56
Private or workplace crèche, nursery, playgroup or pre-school	33
Another relative	16
Childminder	15
Local authority crèche, nursery, playgroup or pre-school	11
Ex-spouse or partner	9
Community or voluntary crèche, nursery, playgroup or pre-school	6
Friend or neighbour	5
Nanny or babysitter	2
Other	7
Unweighted base	*1,223*

Base: All respondents who reported using childcare prior to age 3 (parent survey, weighted)

As with current use of grandparents for childcare, couple parents were more likely to have used grandparents in the early years (61% compared with 37% of single parents). There was also an increase in the use of grandparents as income increased across the first four income groups, from 39% to 67%, followed by a fall in use amongst parents in the highest group to 48%. The use of private nurseries prior to the age of three was more common amongst families in more advantaged circumstances. For example, 52% of parents living in the least deprived areas reported having used this type of provider before the child was aged 3 compared with 19% of those living in the most deprived areas. Similarly, 53% of parents in the highest income households had used this type of provision for the child compared with 18% of those in the lowest income group (See Table C3 in Appendix C). These patterns were reversed for the use of local authority nurseries, falling from 18% to 5% with decreasing levels of area deprivation and from 19% to 6% with increasing levels of income. This may be connected to the use of local authority nurseries for funded provision for eligible 2-year-olds. The nature of this offer, with eligibility based on receipt of certain benefits, makes it more common in more deprived areas.

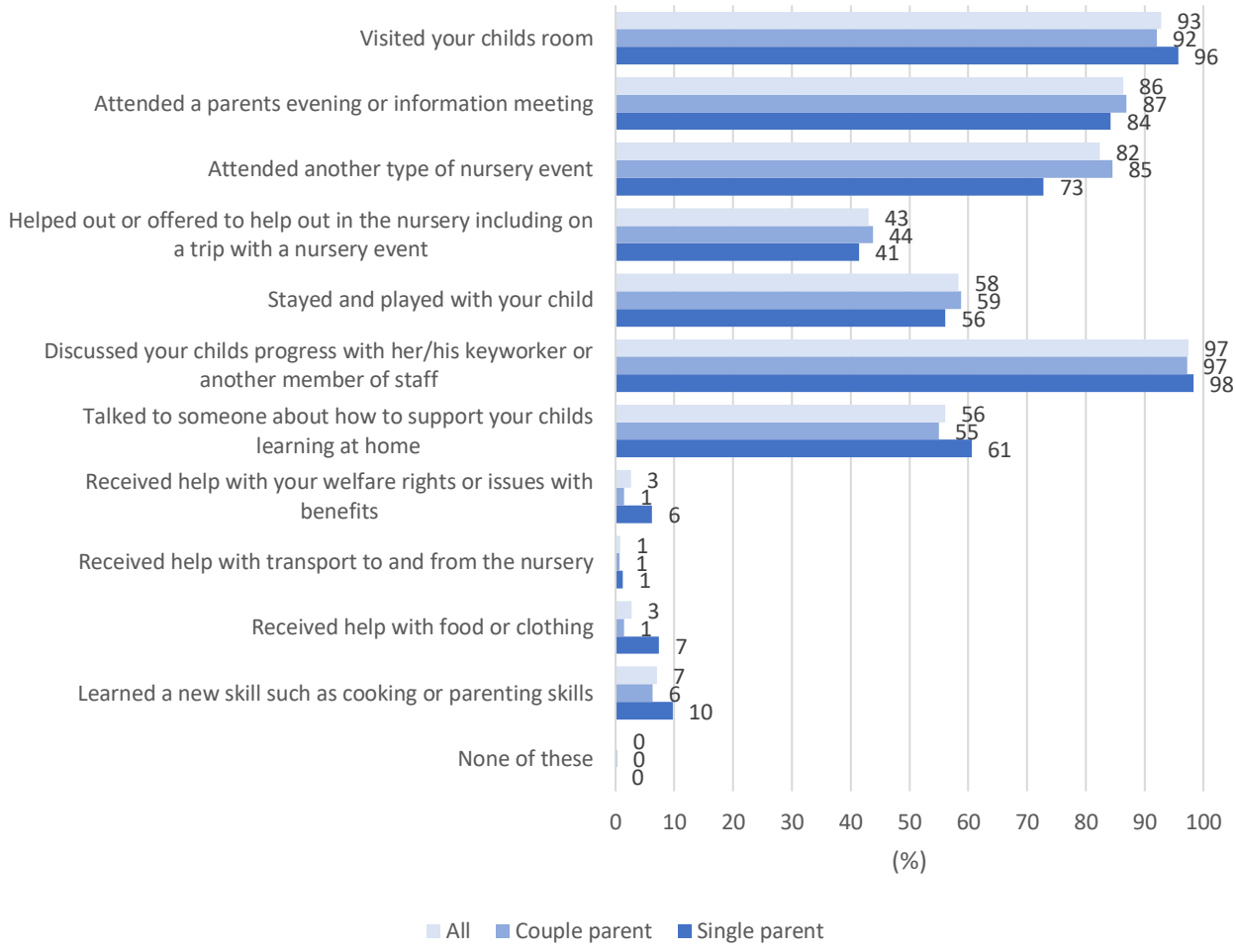
Engagement with ELC setting

Parents were asked whether they had done any of a range of eleven activities at their child's setting since the previous August (the start of the school / nursery year). A number of these focused on engagement with the child and the nursery staff, such as attending a parents' evening or information event, or offering to help out in the nursery. Others focused on some of the wider support that some ELC settings are able to offer to parents, such as help with welfare rights or learning a new skill.

As shown in Figure 4, all but a few parents (> 99%) had participated in at least one of the activities, with nearly all having visited their child's room (93%) and discussed their child's progress with her or his keyworker or another member of staff (97%). Large proportions had also attended a parents' evening or information event (86%) or another type of nursery event (82%). More than half had stayed and played with their child (58%) or had talked to someone about how to support their child's learning at home (56%). Just under half had helped out, or offered to help out in the nursery, including on a trip or with a nursery event (43%). Much smaller proportions had learned a new skill such as cooking or parenting skills (7%), received help with welfare rights or issues with benefits (3%), received help with food or clothing (3%), or received help with transport to the nursery (1%).

It is only among less common activities that there is evidence of variation between different subgroups. For example, 6% of single parents and 7% of those with no formal qualifications or low levels of school education reported receiving help with welfare rights, compared with 1% of couple parents and 1-2% of those with higher levels of education. Similarly, 7% of single parents and 6% of those with no or only low levels of educational qualification reported receiving help with food or clothing, compared with 1% of couple parents and 0-2% of those with higher levels of education. Nineteen percent of those with no formal educational qualifications and 14% of those with only lower levels of qualifications reported learning a new skill, compared with 5-6% of those with higher levels of qualifications. (See Figure 4 and Table C4 in Appendix C).

Figure 4: Activities parent participated in at child's nursery by household type



Base: All respondents (parent survey, weighted)

Accessibility, advantages and disadvantages of child being in nursery

More than three-quarters (79%) of parents lived close enough to the ELC setting that a one-way journey took less than 10 minutes[26]. Nearly half (47%) lived within five minutes, and only 3% lived more than 20 minutes away. There were no significant differences by area deprivation. A higher proportion of those living in rural areas or small towns[27] than those living in urban areas lived within five minutes of the nursery (57% compared with 43%. See Table C5 in Appendix C). Single parents were more likely than those in a couple to live more than 20 minutes away (8%, compared with 2%).

[26] Mode of transport was not specified.

[27] Any settlement of less than 10,000 people

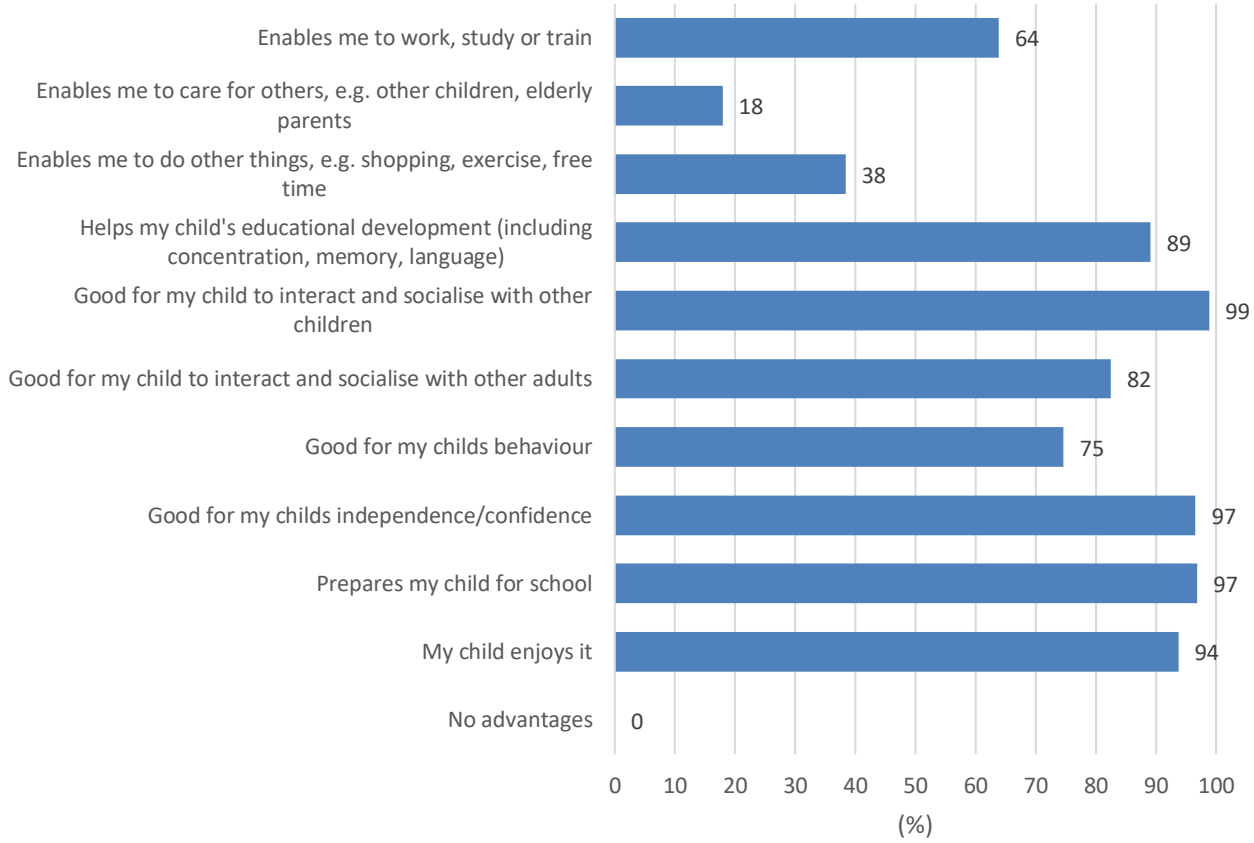
Table 4: Average duration of a single journey from home to the ELC setting

	All
	%
0 to 5 minutes	47
6 to 10 minutes	32
11 to 15 minutes	13
16 to 20 minutes	5
21 to 30 minutes	2
More than 30 minutes	1
Unweighted base	*1,350*

Base: All respondents (parent survey, weighted)

Parents were asked what were the main advantages and disadvantages of their child attending nursery. The list of potential advantages included advantages for the parent (for example, it enables them to work, study or train) and advantages for the child (for example, it helps their educational development). Similarly, the list of disadvantages included some that concerned the parent (for example, nursery hours are not flexible) and some that concerned the child (for example, child is often unhappy in nursery). In a change from the questions used at Phase 1, the questions were specific to the respondent and their child (rather than parents and children generally), and respondents were asked to tick all responses that applied. The responses are summarised in Figures 5 and 6.

Figure 5: Main advantages of child being in nursery

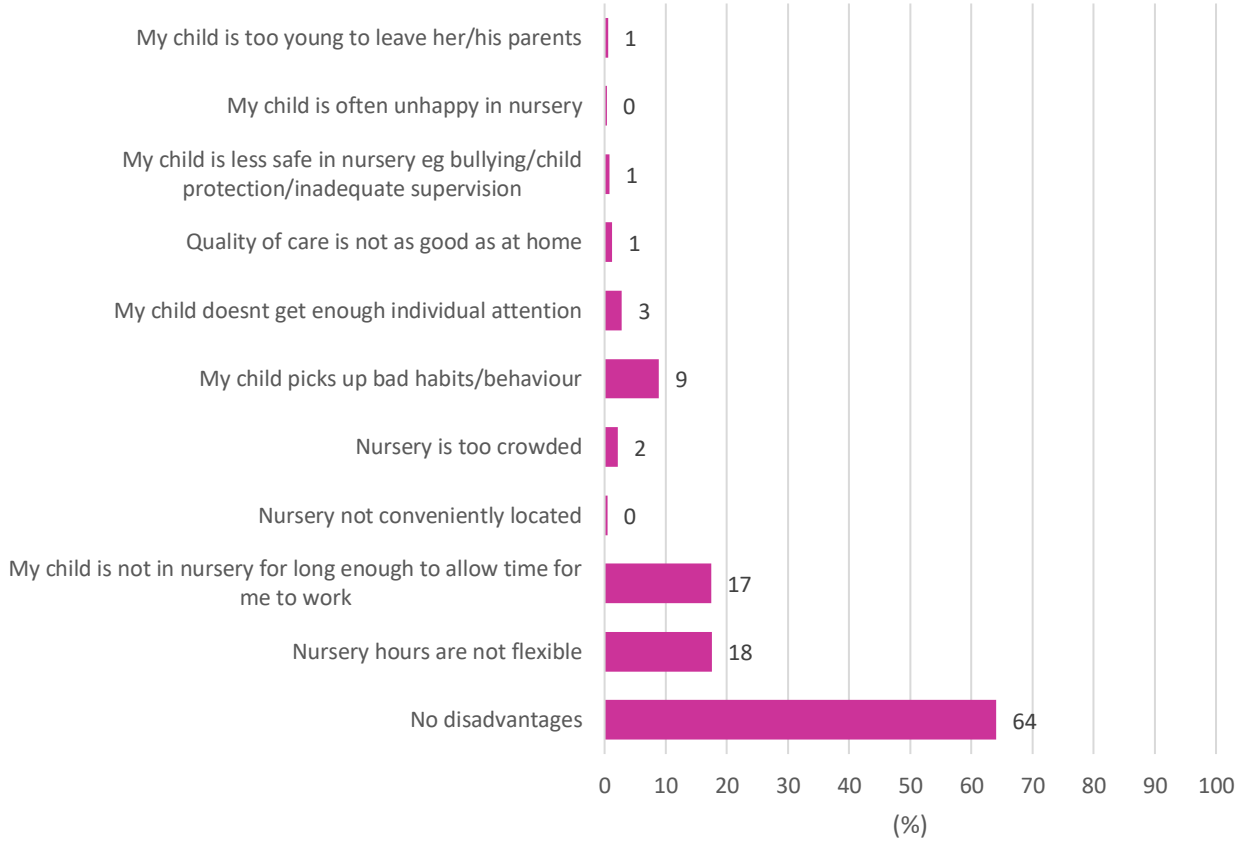


Base: All respondents (parent survey, weighted)

All parents mentioned at least one advantage for themselves or their child, with advantages for the child being more commonly cited than those for the parent. Nearly all parents said that it was good for their child to interact and socialise with other children (99%), that it was good for their independence / confidence (97%), that it prepared them for school (97%) and that they enjoyed it (94%). At least three-quarters also said that it helped their child's educational development (89%), it was good for them to interact and socialise with other adults (82%), and that it was good for their behaviour (75%). Two-thirds (64%) of parents said that having the child in nursery enabled them to work, study or train. Smaller proportions said that it enabled them to care for others (18%) or to do other things (38%).

Two-thirds (64%) of parents said that there were no disadvantages to the child being in nursery. The main disadvantages mentioned were that nursery hours were not flexible (18%), that the child is not in nursery for long enough to allow time for work (17%), and that the child picks up bad habits / behaviour (9%).

Figure 6: Main disadvantages of child being in nursery



Base: All respondents (parent survey, weighted)

Child health and development

Assessments of development

Children's keyworkers at ELC settings were asked to complete observations of the child's development using the Ages and Stages (ASQ) and Strengths and Difficulties (SDQ) questionnaires. Both the ASQ and SDQ are widely used by Health Visitors across Scotland as part of their health reviews of pre-school children – the Scottish Child Health Programme[28]. These particular instruments were also selected for inclusion in the Child Health Programme following an extensive review by academics and practitioners[29].

The ASQ provides a structured assessment of a range of developmental domains, usually using a parental questionnaire supported by observation of the child at play, to identify children at increased risk of developmental difficulties. There are 30 items split into five different domains: communication, gross motor, fine motor, problem solving and personal-social. By answering 'yes', 'sometimes' or 'no', the respondent indicates whether or not the child can complete the action or provide the response required. Each domain produces a summary score which can be used to indicate whether the child's development is on schedule, needs monitoring or requires further assessment. Whilst it is designed to be completed by parents, because it is informed by observation of the child it was deemed suitable for completion by the child's keyworker at their ELC setting.

The SDQ is a commonly used behavioural screening questionnaire designed for use with children aged between three and 16. It consists of 25 questions about a child's behaviour to which the respondent can answer 'not true', 'somewhat true' or 'certainly true'. Responses can be combined to form five different measures of the child's development, namely emotional symptoms (e.g. excessive worrying), conduct problems (e.g. often fighting with other children), hyperactivity / inattention (for example, constantly fidgeting), peer relationship problems (e.g. not having close friends), and prosocial behaviour (e.g. being kind to others). Furthermore, the first four measures can be combined into a 'total difficulties' scale. Higher scores imply greater evidence of difficulties on each of the scales, with the exception of the prosocial behaviour scale where the reverse is true. In this report, recommended banded versions of the scales have been used to create the following categories: 'close to average', 'slightly raised', 'high' and 'very high', with 'very high' indicating multiple difficulties identified.

Ages and Stages Questionnaire

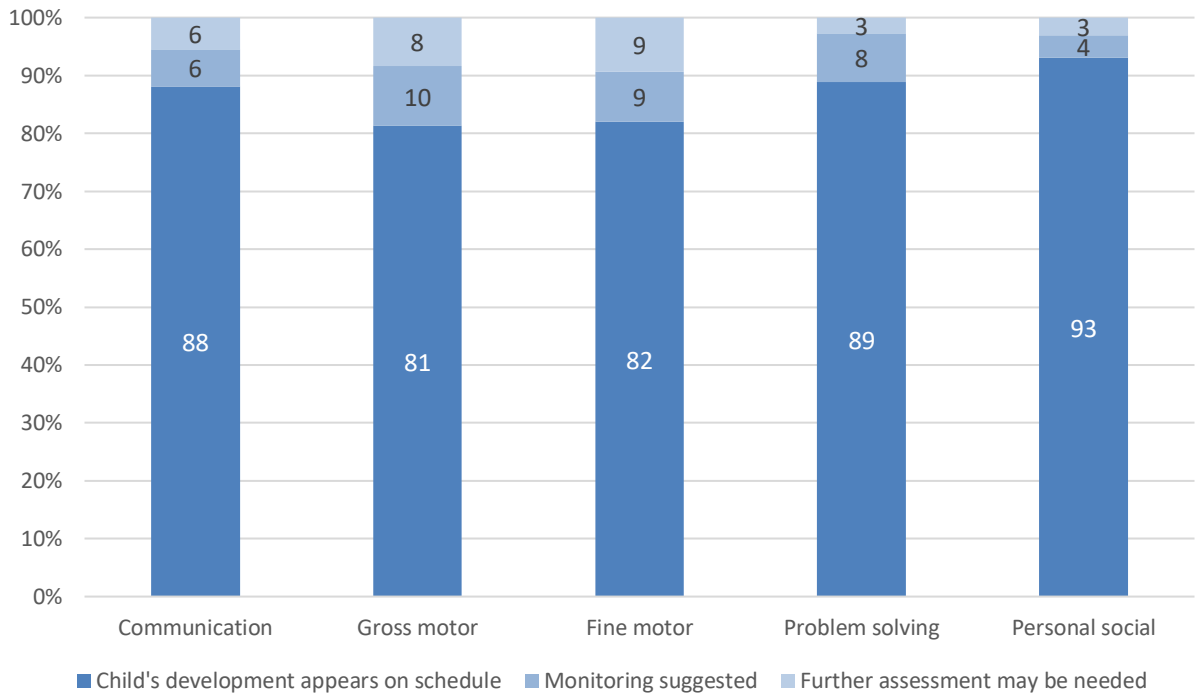
Figure 7 provides a breakdown of the proportion of children whose development was regarded as requiring further assessment, monitoring or as being on schedule

[28] Scottish Government (2012) *The Scottish Child Health Programme: Guidance on the 27-30 month child health review*, Edinburgh: Scottish Government

[29] Bedford, H., Walton, S., Ahn, J. (2013) *Measures of Child Development: A review*, London: Centre for Paediatric Epidemiology and Biostatistics, UCL Institute of Child Health.

across the five ASQ domains. The majority of children were considered to be on schedule on all domains, as may be expected for a nationally representative sample. The proportion of children considered to be on schedule was highest in the personal-social domain (93%), followed by the problems solving domain (89%) and the communication domain (88%), and lowest in the gross and fine motor domains (81% and 82% respectively).

Figure 7: ASQ Score by domain



Base: All children (keyworker observations, weighted)

Differences in ASQ scores by gender, socio-economic status and SDQ scores

As is commonly seen on a range of different measures throughout childhood[30], girls were more likely than boys to be on schedule on all the domains, although the large majority of boys as well as girls were on schedule in each case. On three of the domains (communication, fine motor and problem solving), there were associations between area deprivation and not being on schedule, and between low income and not being on schedule. On the gross motor, fine motor and problem solving domains there were also associations between low levels of education and not being on schedule. Scores on the personal-social domain were not associated with any of these measures of socio-economic status. Further details of these associations are provided in the following sections.

It is worth noting that socio-economic factors tend to be associated with each other: those with low levels of education are more likely to be on lower incomes and to live in more deprived areas. Certain risk or protective factors also tend to be more

[30] See, for example, Achievement of Curriculum for Excellence (CfE) Levels 2017/18: https://www.gov.scot/publications/achievement-curriculum-excellence-cfe-levels-2017-18/

prevalent in different socio-economic groups. For example, breastfeeding and high frequencies of home learning activities are both associated with high levels of parental education. The differences observed in the following sections looking at socio-economic factors should therefore be viewed in light of the other figures discussed later looking at the child's home environment. Any difference seen between sub-groups is not necessarily due to the particular factor being considered, but could be due to a combination of factors. In addition, in some cases there may be no causal association at all between a specific risk factor and the ASQ scores, with the association due entirely to other known or unknown factors. Towards the end of the section on child outcomes we will look at regression analysis to determine the main drivers behind the observed associations.

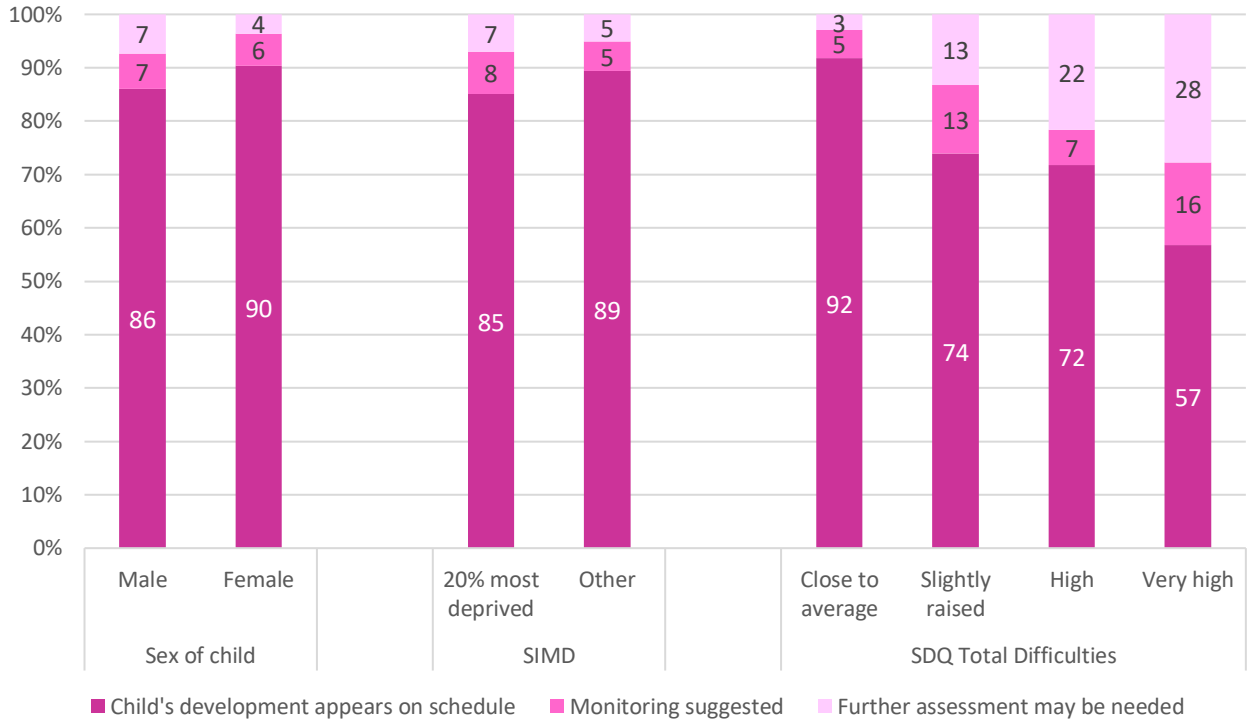
There were also very strong correlations between ASQ and SDQ scores. While both measure child development, they do measure different things. The SDQ is concentrated on social, emotional and behavioural development, while the ASQ is more broad in its coverage of developmental milestones. There are many children picked up by one of the measures as potentially exhibiting development that is behind schedule, but not assessed as at risk on other measures. At the same time there are many children whose development is behind schedule in multiple different ways.

ASQ communication domain

Figure 8 breaks down scores on the ASQ communication domain by the sex of the child, the child's SDQ score and by area deprivation (SIMD). Girls were more likely to be on schedule (90%) than boys (86%), although the difference for the communication domain is not as large for some of the other domains. Children living in the most deprived areas were less likely to be on schedule (85%) than children living in other areas (89%). Children from wealthier families were also more likely to be assessed as on schedule than those from less wealthy households (94% of those in the top two income groups, compared with 84-86% of those in lower income groups) (see Appendix Table C6). No significant differences were noted by education or by number of parents.

As was the case with the other ASQ domains, a child's score on the communication domain was correlated with their SDQ total difficulties score. Those who had a SDQ score that was close to average were much more likely to be on schedule in the ASQ communication domain (92%) than those who scored 'very high' on the SDQ total difficulties scale (57%).

Figure 8: ASQ communication domain by child's sex, SDQ total difficulties score and SIMD

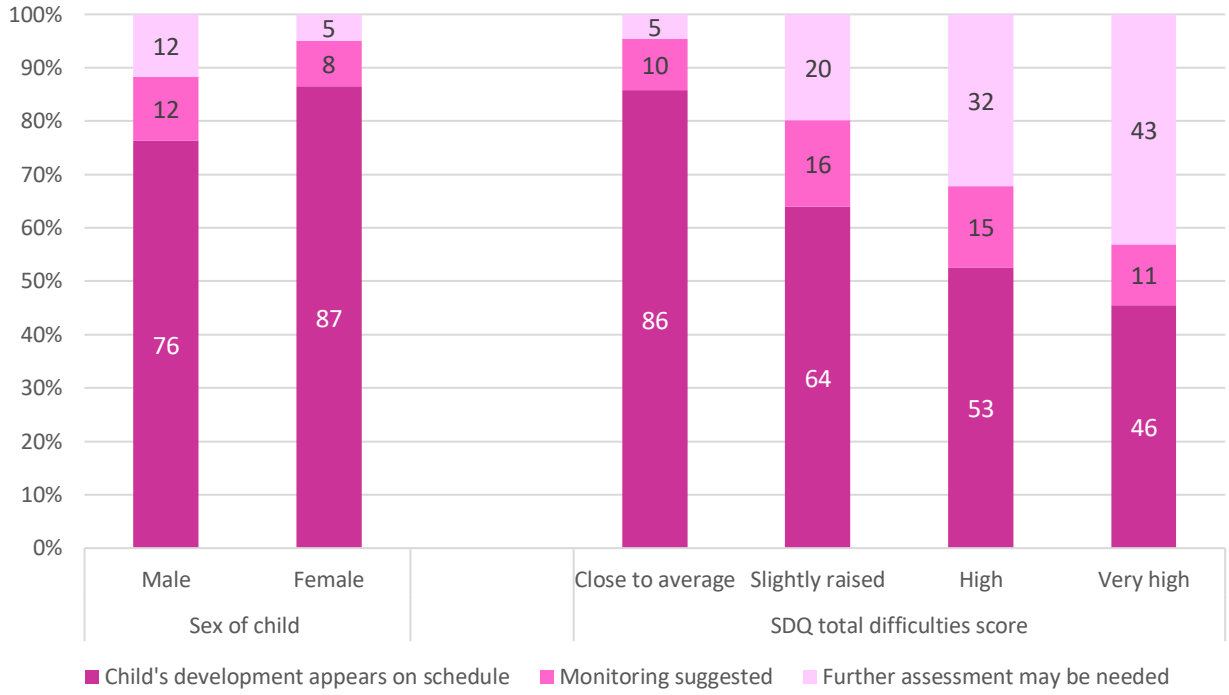


Base: All children (keyworker observations, weighted)

ASQ gross motor domain

Figure 9 provides a breakdown of the assessments in the gross motor domain by sex of the child and their SDQ total difficulties score. As was the case across all ASQ domains, boys were more likely to be assessed as requiring further assessment or monitoring than girls. Development was assessed as being on schedule for 87% of girls compared with 76% of boys. Those who scored close to average on the SDQ total difficulties score were also more likely to be on schedule in the ASQ gross motor domain than those who scored 'very high' (86% compared with 46%). There were no significant differences in gross motor scores by area deprivation or by number of parents, although there were differences by highest level of parental education. Where the respondent (generally the mother) had at least Highers or equivalent upper school or post-school qualifications, the child was more likely to be on schedule (82-85%) than where the respondent only had lower school qualifications (such as Standard Grades or equivalent) or no qualifications (72-74%). (See Table C7 in Appendix C).

Figure 9: ASQ gross motor domain by child's sex and SDQ total difficulties score



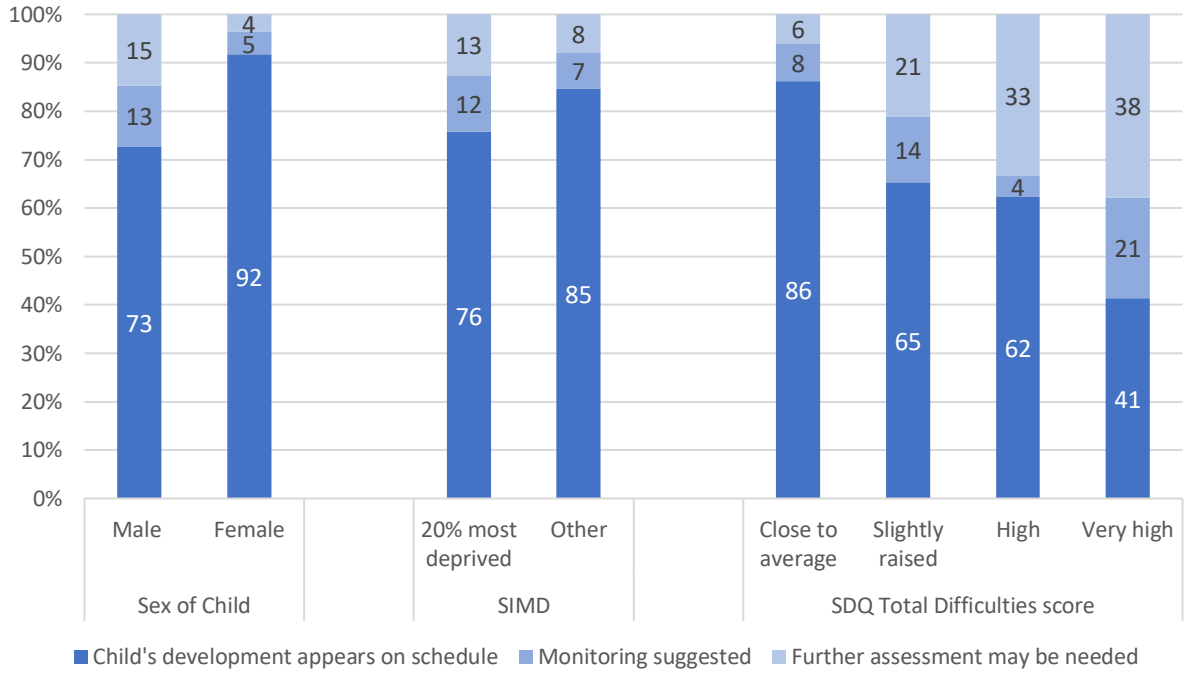
Base: All children (keyworker observations, weighted)

ASQ fine motor domain

Some of the largest differences between subgroups were evident in the ASQ fine motor domain. The gap between boys and girls as shown in Figure 10 was highest in this domain, with 92% of girls being assessed as on schedule for fine motor skills, compared with 73% of boys. Children living in the most deprived areas were less likely to be on schedule (76%) than those living elsewhere (85%), and children who were close to average on the SDQ total difficulties score were much more likely (86%) to be on schedule than those who scored 'very high' (41%).

The child's score on the ASQ fine motor domain was also associated with all of the other socio-economic characteristics examined, as shown in Tables C8 to C10 in Appendix C. Higher household income and higher levels of parental educational attainment were both associated with increased likelihood of a child being assessed as on schedule for fine motor development, as was living in a two parent household (compared with a single parent household).

Figure 10: ASQ fine motor domain by child's sex, SIMD and SDQ total difficulties Score

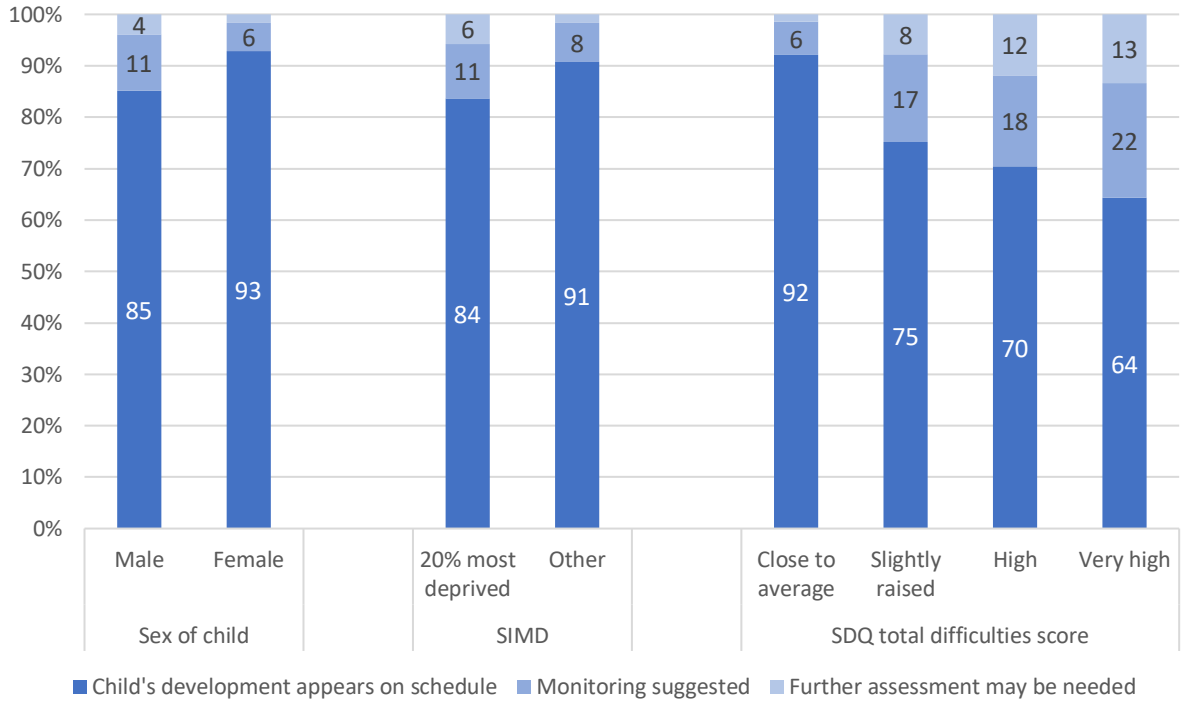


Base: All children (keyworker observations, weighted)

ASQ problem solving domain

For the ASQ problem solving domain a number of associations with socio-demographic factors were again evident. Girls were more likely than boys to be on schedule (93% compared with 85%). Those in the most deprived areas (84%) were less likely to be on schedule than those residing in other areas (91%). Figure 11 also illustrates the strong association between the ASQ problem solving domain and the SDQ total difficulties score, with 92% of those with a close to average SDQ total difficulties score assessed as on schedule for problem solving, compared with 64% of those who scored 'very high'. The appendix tables reveal further associations between household and socio-economic factors and increased likelihood of being on schedule for problem solving, including living in a high-income household (Table C11), having parents with at least Highers or equivalent (Table C12) and living in a two-parent household (Table C13).

Figure 11: ASQ problem solving domain by child's sex, SIMD and SDQ total difficulties Score

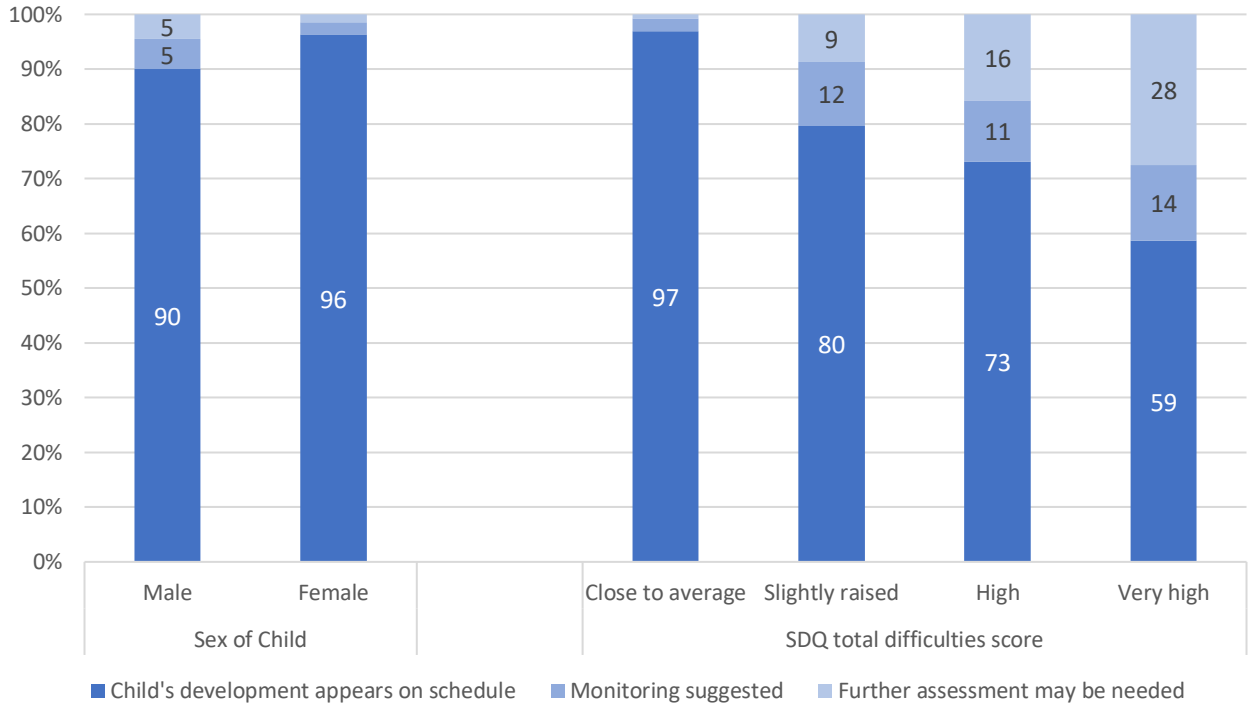


Base: All children (keyworker observations, weighted)

ASQ personal-social domain

Finally, Figure 12 breaks down the ASQ personal-social domain by sex and SDQ total difficulties score. Girls (96%) were more likely to be on schedule than boys (90%) and those with close to average SDQ scores (97%) were more likely than those with 'very high' scores (59%) to be on schedule. Socio-economic status did not appear to be associated with scores on the ASQ personal-social domain.

Figure 12: ASQ personal-social domain by child's sex and SDQ total difficulties Score

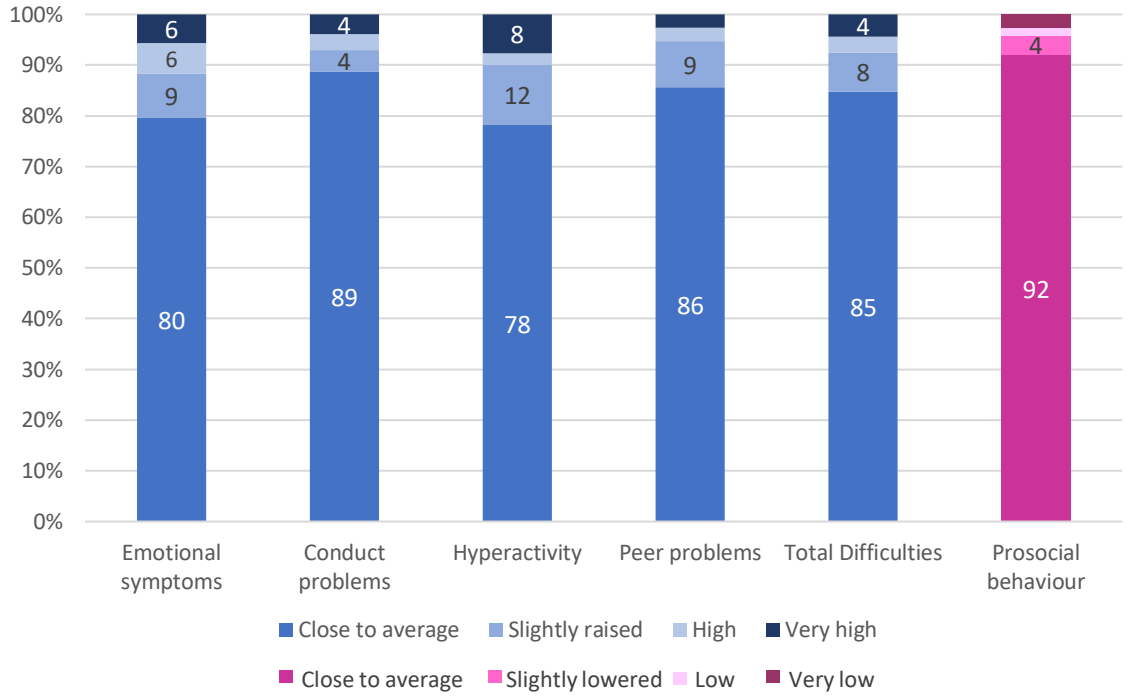


Base: All children (keyworker observations, weighted)

Strengths and Difficulties Questionnaire

Figure 13 provides a breakdown for all five of the SDQ domains as well as the total difficulties score. The prosocial behaviour domain is coloured differently to highlight the different labelling, although the general meaning of the categories are similar. The scales are designed so that most children have a score in the 'close to average' range, with around 20% of the population having raised scores (lowered for prosocial behaviour), although some variation is expected according to the age of the children. Data from the keyworker observations shows that for each of the domains, proportions of children with raised scores are as expected from a nationally representative sample with 85% of children scoring close to average in their SDQ total difficulties score (the sum of the scores for the four "problem" domains). The domain in which the most children scored close to average was prosocial behaviour (92%), followed by conduct problems (89%) and peer problems (86%). The domains in which the lowest proportion of children scored close to average were hyperactivity (78%) and emotional symptoms (80%).

Figure 13: SDQ scores by domain



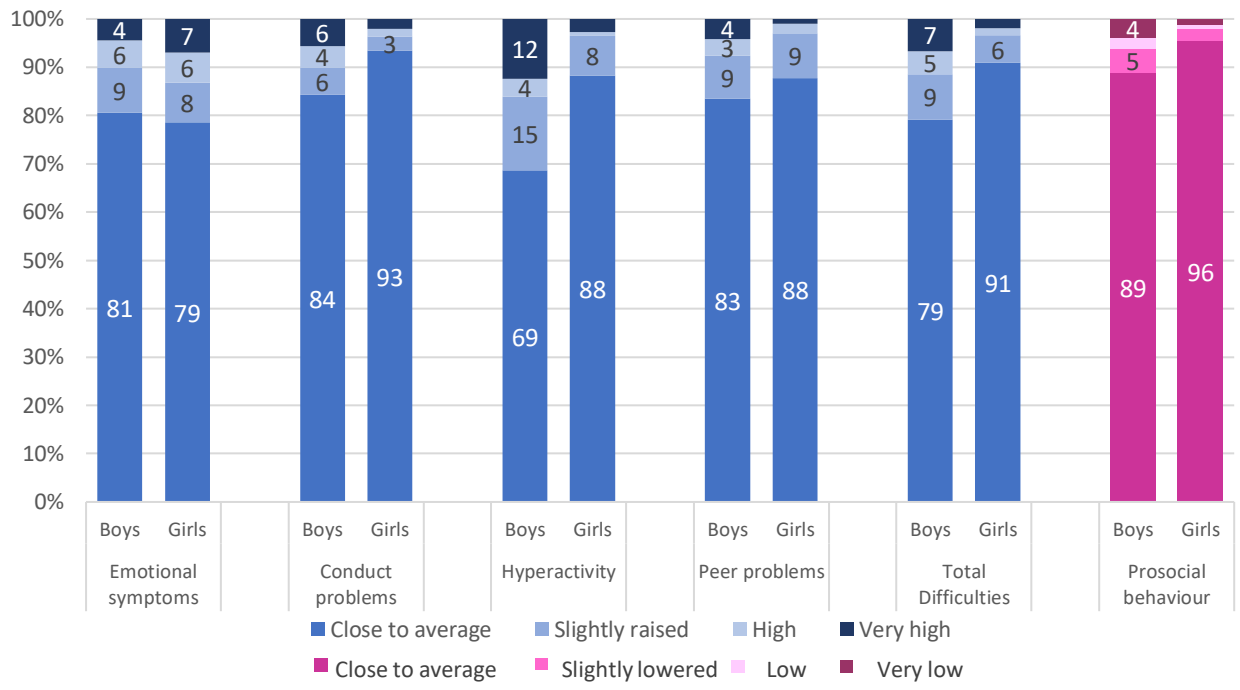
Base: All children (keyworker observations, weighted)

Differences in SDQ scores by child's sex and SIMD

As seen with the ASQ scores, the child's sex was a significant factor in predicting child outcomes. Across all the SDQ domains, with the exception of emotional symptoms, girls tended to have fewer difficulties (indicated by raised scores on the problem domains and lowered scores on the prosocial behaviour domain) than boys (see Figure 14). For the total difficulties score, 91% of girls were close to average compared with 79% of boys, with 7% of boys scoring 'very high' compared with 2% of girls. The gap was largest for the hyperactivity domain (88% of girls close to average compared with 69% of boys). The gap was smaller, but still significant, for the conduct problems domain (84% of boys and 93% of girls close to average), the peer problems domain (83% of boys and 88% of girls close to average), and the prosocial behaviour domain (89% of boys and 96% of girls close to average). Differences between boys and girls were not significant for the emotional symptoms domain.

Area deprivation was not significantly associated with a child's SDQ total difficulties score, nor was it for any of the individual domains.

Figure 14: SDQ domain scores by child's sex

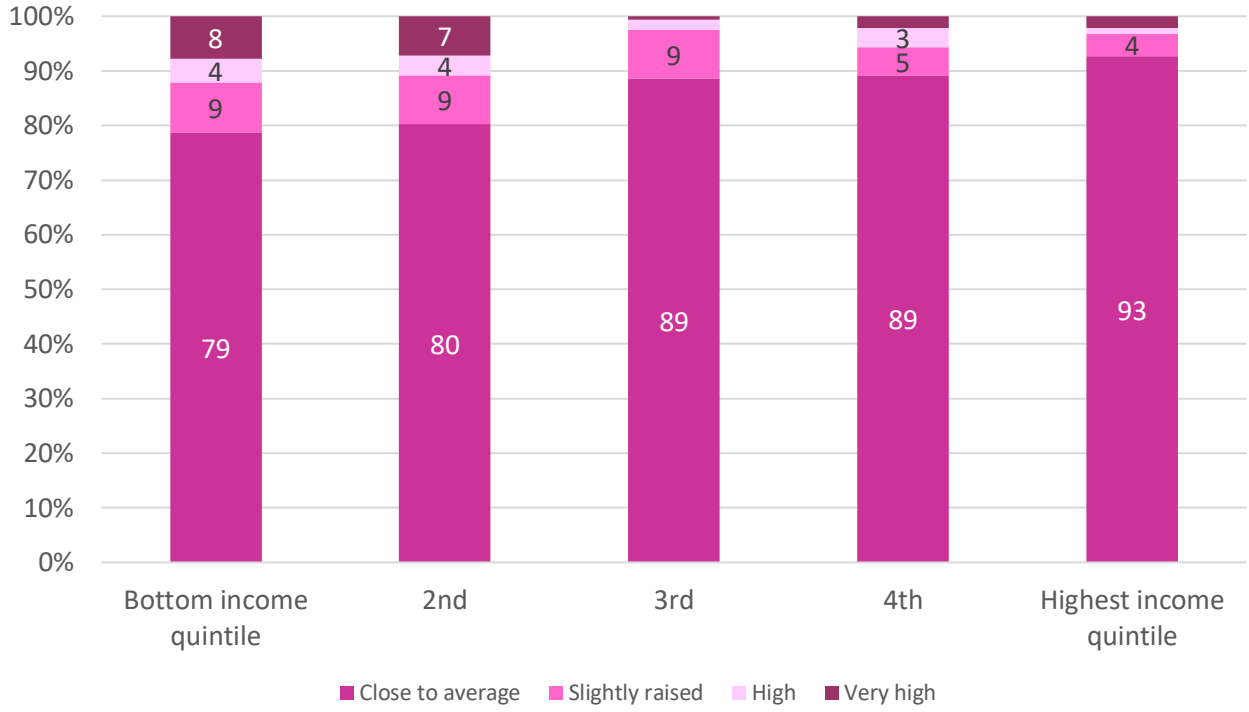


Base: All children (keyworker observations, weighted)

Differences in SDQ total difficulties score by socio-economic status

To avoid further repetition, the remaining analysis of the SDQ scales has been conducted for the total difficulties score only. As shown in Figure 15 and Tables C14 and C15 in Appendix C, a child's SDQ total difficulties score was also associated with a range of socio-economic factors. Children were more likely to have raised scores if they lived in low-income households (Figure 15). Around one-in-five (20-21%) of those in the two lowest income quintiles had raised / high scores, compared with one-in-ten (7-11%) of those living in higher income households. Similarly, children were more likely to have raised scores if their parent had no formal educational qualifications (Table C14) or if they lived in a single parent household (Table C15).

Figure 15: SDQ total difficulties score by OECD equivalised household income



Base: All children (keyworker observations, weighted)

General health and long-term illnesses

Parents were asked to rank their child's general health as either 'very good', 'good', 'fair', 'bad' or 'very bad'. Three-quarters of parents (76%) ranked their child's health as being 'very good', and a further one-fifth (21%) ranked it as being 'good'. Only 2% of parents stated their child's health was 'fair' and fewer than 1% ranked it as being 'bad'.

There was no noticeable difference in perceptions of the child's general health for boys and girls. Nor was there a significant difference in perceptions of children's general health related to area deprivation. However, there was a difference in perceptions between single parent and couple parent households with 65% of those in single parent households perceiving their child's health as being 'very good' compared with 78% of those in couple households (see Table 5).

Table 5: Child's general health by household type

	Single parent	Couple parent	All
	%	%	%
Very good	65	78	76
Good	29	20	21
Fair	6	2	2
Bad	-	0	0
Unweighted base	*274*	*1,096*	*1,380*

Base: All respondents (parent survey, weighted)

One-in-ten children (10%) had a longstanding illness or health condition. Of these children, 15% of parents said that the longstanding illness limited the child 'a lot', 44% said it limited them 'a little' and 41% stated the longstanding illness did not limit their child, meaning that 6% of all four- and five-year-old children attending an ELC setting had a longstanding limiting illness. Boys were more likely to have a longstanding condition than girls (12% compared with 8%). There was also a difference by household type with 14% of children in single parent households having a longstanding illness compared with 9% of children in two parent households.

Longstanding illnesses were most commonly associated with mental health, social, emotional or behavioural issues (30% of those with a long-term condition). However, one quarter of those whose child had a longstanding illness stated it affected the child's stamina or breathing and just over one-fifth (22%) said it affected the child's learning, concentrating or remembering. Table 6 provides a complete summary of these responses. Seventy-one percent of the parents of children with a long-term condition mentioned that it affected their child in just one of the ways listed in Table 6, while 21% mentioned two different ways and 8% three or more.

Table 6: How longstanding condition or illness affects child*

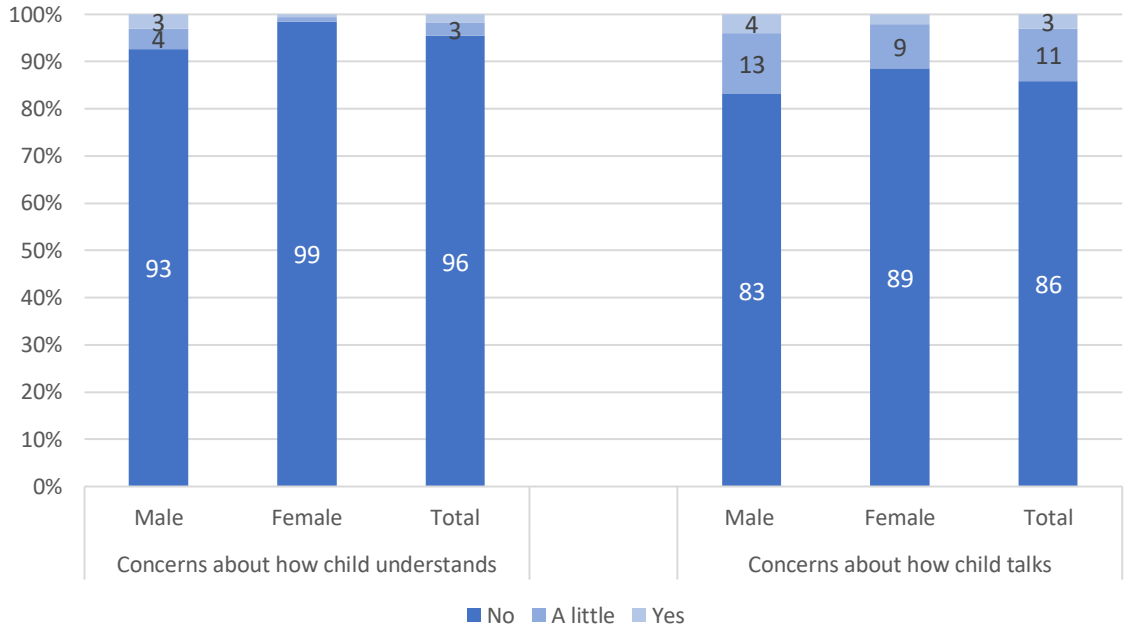
	All
	%
Vision	13
Hearing	11
Mobility	10
Learning, concentrating or remembering	22
Stamina or breathing difficulty	25
Mental health, social, emotional or behavioural issues	30
Other impairment(s)	30
Unweighted base	*128*

Base: All children with a long-term condition (parent survey, weighted)

*Note: respondents were able to choose more than one response. As such, percentages will not total 100%.

Parents were asked whether they had any concerns about how their child talks or how they understand. The majority of parents had no concerns about either (86% and 96% respectively). There were some differences between boys and girls, as shown in Figure 16. For girls, 99% of parents had no concerns about how they understood, compared with 93% of parents of boys. Seventeen percent of parents of boys had concerns about how their child talks compared with 11% of parents of girls. There were no significant differences in responses between single and couple parent households, nor was area deprivation a significant factor.

Figure 16: Parental concerns about how the child talks and understands by child's sex



Base: All respondents (parent survey, weighted)

Home environment

Parents were asked for a range of information capturing aspects of their child's early childhood circumstances, experiences and behaviours which are known to be associated with child development. These include sleep patterns, breastfeeding, and activities at home that promote learning. Once we have explored these in more detail, we shall return to the assessments of development to examine the relationships between ASQ and SDQ scores and the child's home environment.

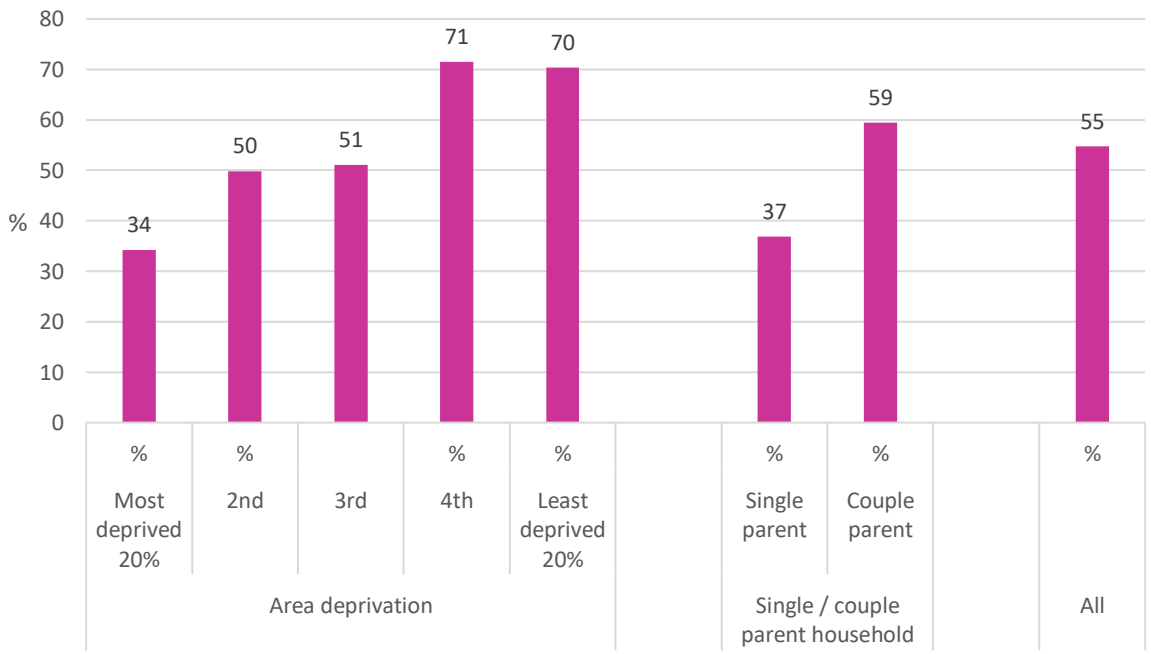
Six-in-ten children aged four or five (60%) slept through the night every night (Table 7). There were no significant differences in this measure according to sex of the child, area deprivation or household type.

Table 7: How often child sleeps through the night without waking

	All
	%
Never sleeps right through the night	6
1-2 times a week	7
3-5 times a week	13
6 times a week	14
Every night	60
Unweighted base	*1,374*
Base: All respondents (parent survey, weighted)	

Just over half (55%) of children had ever been breastfed, with no significant differences between boys and girls. There were differences in incidences of breastfeeding related to area deprivation and household type, summarised in Figure 17. Only one-third (34%) of children who lived in the most deprived areas had ever been breastfed, compared to more than two-thirds (70-71%) in the two least deprived quintiles. There was also a lower rate of breastfeeding among single parents than couple parents: 37% of single parents reported that their child was ever breastfed, compared with 59% of those living in two-parent households.

Figure 17: Whether child was ever breastfed by area deprivation (SIMD) and household type



Base: All respondents (parent survey, weighted)

Parents were asked how often the child had been engaged in various home learning activities in the previous seven days. These included looking at books / reading stories, painting or drawing, reciting nursery rhymes / singing songs and playing at recognising letters, words, numbers or shapes.

The most common activity was looking at books or reading stories which 57% of children had done every day in the previous week. Reciting nursery rhymes / singing songs and recognising letters, words, numbers and shapes were also relatively common activities with 51% of children having done the former every day in the last seven and 42% the latter. Painting and drawing was less common, with a quarter (25%) of children having done this every day. Thirteen percent of children had done all four of the activities on every day in the previous week, while very few (< 0.5%) had done none of the activities at all over that time.

There were some differences in activities engaged in between girls and boys, between those in single and couple parent households, and according to area deprivation, as shown in Table 8. Boys were less likely to have been engaged in activities related to painting and drawing than girls - 16% of boys having done this each day in the last seven compared with 34% of girls. Boys also sang songs / recited nursery rhymes less frequently (45% of boys did this every day compared with 58% of girls). Children in single parent households were less likely to have looked at books and read stories than children in couple parent households. Thirty-nine percent of those in single parent households had read books / looked at stories every day in the last week compared with 61% of children in couple parent households. Those living in deprived areas were also less likely to have looked at books every day: 41% of children in the most deprived areas had done so, compared with 61% of children in other areas.

Table 8: Frequency of home learning activities by child sex, area deprivation and household type

	Male child	Female child	Most deprived 20%	Other area	Single parent	Couple household	All
	%	%	%	%	%	%	%
Looked at books or read stories							
Not in last 7 days	2	1	5	1	3	1	2
1 to 3 days	16	14	23	13	29	12	15
4 to 6 days	27	26	31	25	30	25	26
7 days	55	58	41	61	39	61	57
Painting or drawing							
Not in last 7 days	6	1	4	3	3	3	3
1 to 3 days	45	23	34	35	36	34	34
4 to 6 days	33	42	40	37	38	37	37
7 days	16	34	22	25	22	26	25
Recited nursery rhymes or sung songs							
Not in last 7 days	2	1	2	2	3	1	2
1 to 3 days	21	13	17	17	17	17	17
4 to 6 days	31	28	25	31	30	30	30
7 days	45	58	57	50	50	52	51
Recognising letters, words, numbers or shapes							
Not in last 7 days	2	2	3	2	5	1	2
1 to 3 days	20	19	22	19	22	19	20
4 to 6 days	35	38	37	36	33	38	36
7 days	43	41	38	43	40	42	42
*Unweighted base**	*684*	*673*	*408*	*236*	*267*	*1,086*	*1,361*

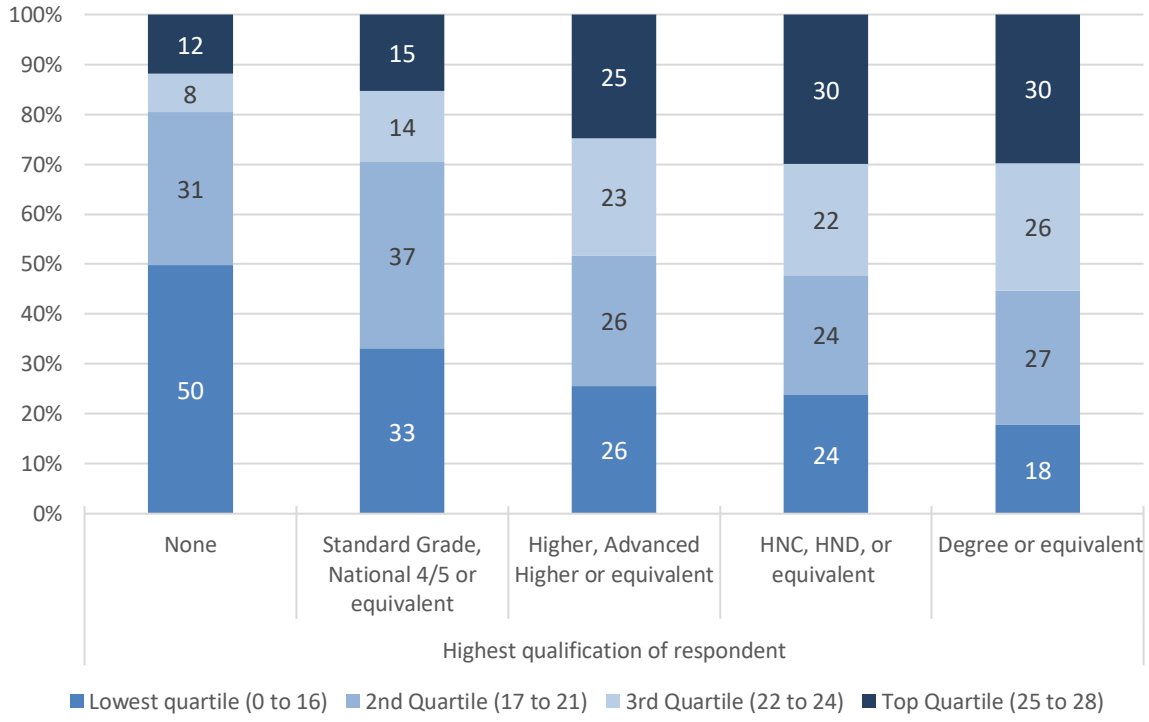
Base: All respondents (parent survey, weighted)

**Note: bases vary slightly for each individual activity. The bases shown are the lowest amongst the four activities.*

The frequencies at which children had done each activity in the last seven days were summed together to create a total home learning activity score. The score ranged from 0 to 28 with the highest score indicating the child had been engaged in all four activities on each of the previous seven days. The cohort was then split into four evenly sized groups (quartiles) according to their scores on the scale: 0 to 16 (24% of all children); 17 to 21 (28%); 22 to 24 (23%) and 25 to 28 (26%).

Figure 18 breaks down the home learning environment (HLE) score quartiles by the parent's highest educational qualification.

Figure 18: Home learning environment score by parent's highest educational qualification



Base: All respondents (parent survey, weighted)

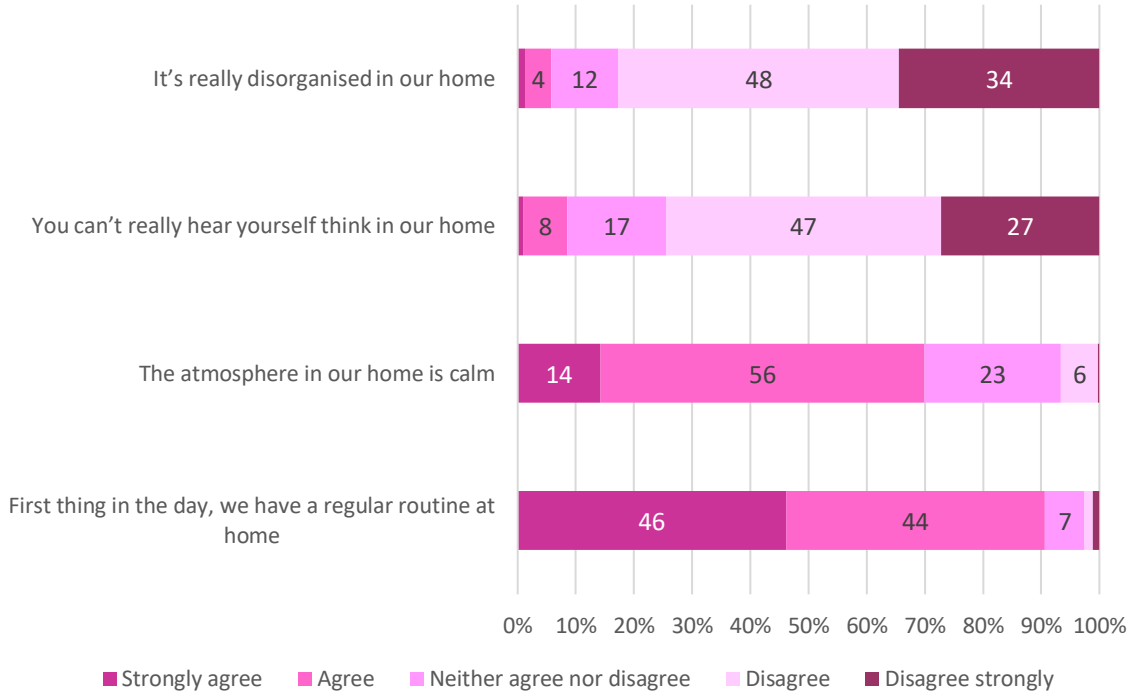
In general, the higher the educational qualification held by the parent, the more likely the child was to be in a higher HLE group. Half of those whose parents had no qualification were in the lowest quartile for HLE, representing the least frequent home learning activities, compared with 18% of those whose parents had a degree or equivalent. Only 12% of those children whose parents had no qualifications were in the top quartile for HLE, compared with 30% of those with post-school qualifications (HNC, HND, degree or equivalent).

Parents were also asked about how chaotic or ordered their home was using four items taken from the Confusion, Hubbub and Order Scale (CHAOS)[31]. The items ask parents how much they agree or disagree with four statements:

- It's really disorganised in our home
- You can't really hear yourself think in our home
- The atmosphere in our home is calm
- First thing in the day, we have a regular routine at home

Responses to these questions are summarised in Figure 19.

Figure 19: Agreement and disagreement with household order / chaos items



Base: All respondents (parent survey, weighted)

Most parents disagreed with the first two statements and agreed with the last two, indicating that their homes were calm and organised. Overall, 91% agreed that they had a regular routine first thing in the day, 70% agreed that the atmosphere in their home was calm, 74% disagreed that they could not really hear themselves think in their home and 83% disagreed that it was really disorganised in their home. There was no significant variation in responses to any of these statements by sex of the child, area deprivation or by household type.

Responses to these four statements were summed together - reversing the last two items - to create a scale with possible values from 4 to 20, with higher values representing more chaotic households. The scale was then divided into three

[31] Matheny Jr, A.P., Wachs, T.D, Ludwig, J.L. and Phillips, K. (1995) "Bringing order out of chaos: Psychometric characteristics of the confusion, hubbub and order scale", *Journal of Applied Developmental Psychology*, 16, pp. 429-444.

groups of equal size indicating households with low, moderate and high levels of chaos. This scale was used earlier as a predictor of ASQ and SDQ scores. There was no significant variation in this scale according to sex, area deprivation, household type, parental education or income.

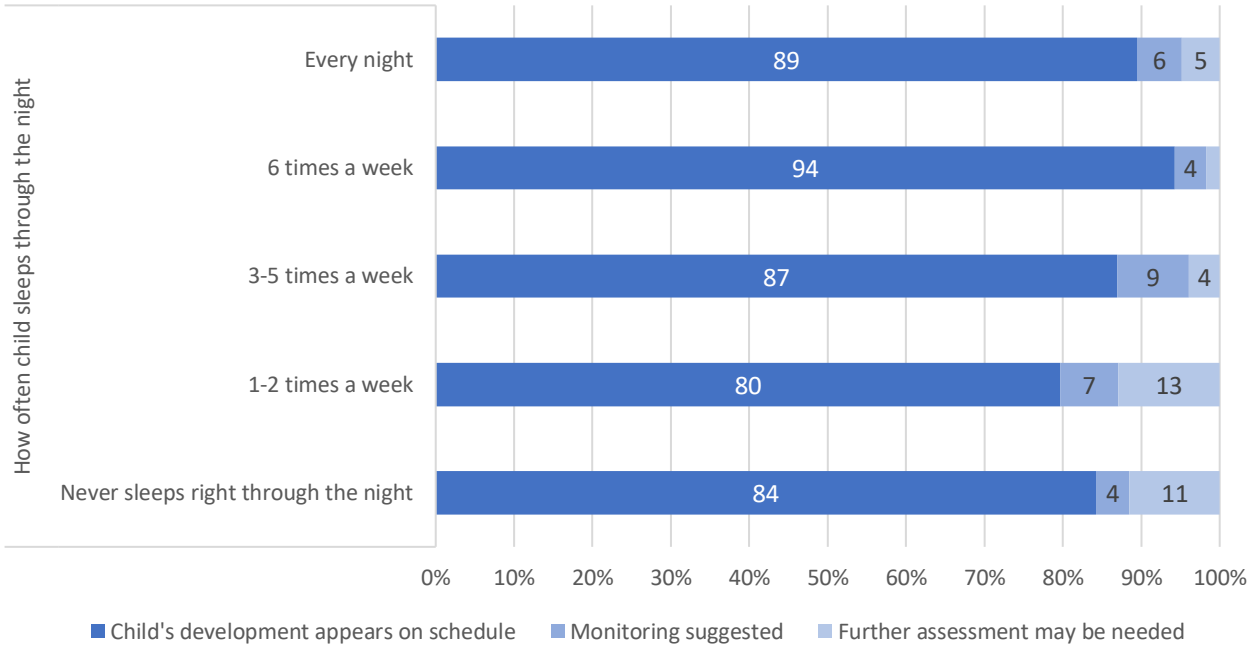
Assessments of development and home environment

The ASQ domains and the SDQ total difficulties score were examined in relation to a number of risk factors or family attributes (see the sections on developmental risk factors, parental outcomes and characteristics of the cohort for more details of these measures). In this section we look first at the associations between individual risk factors and child development outcomes, and then use logistic regression analysis to identify the key drivers of development outcomes.

ASQ communication domain

For most of the factors examined relating to the child's home environment, there were no significant differences between subgroups in the proportion of children assessed as on schedule in the ASQ communication domain. This was true for differences in parental long-term conditions, parental mental wellbeing, home learning environment, the "confusion, hubbub and order" scale, parental self-efficacy, and whether the child was ever breastfed. The only further factor examined where there was a difference on the ASQ communication domain was whether the child sleeps through the night (see Figure 20). In general, children aged four or five who slept through the night every night or most nights were more likely to be assessed as on schedule (89-94%) than those who slept through the night no more than two nights a week (80-84%).

Figure 20: ASQ communication domain by whether child sleeps through the night



Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

ASQ gross motor domain

Scores on the gross motor domain did not appear to be strongly associated with any of the family attributes discussed in relation to the communication domain above, suggesting that it may not be easy to improve scores on the gross motor domain through modifying parenting behaviours or the child's home life.

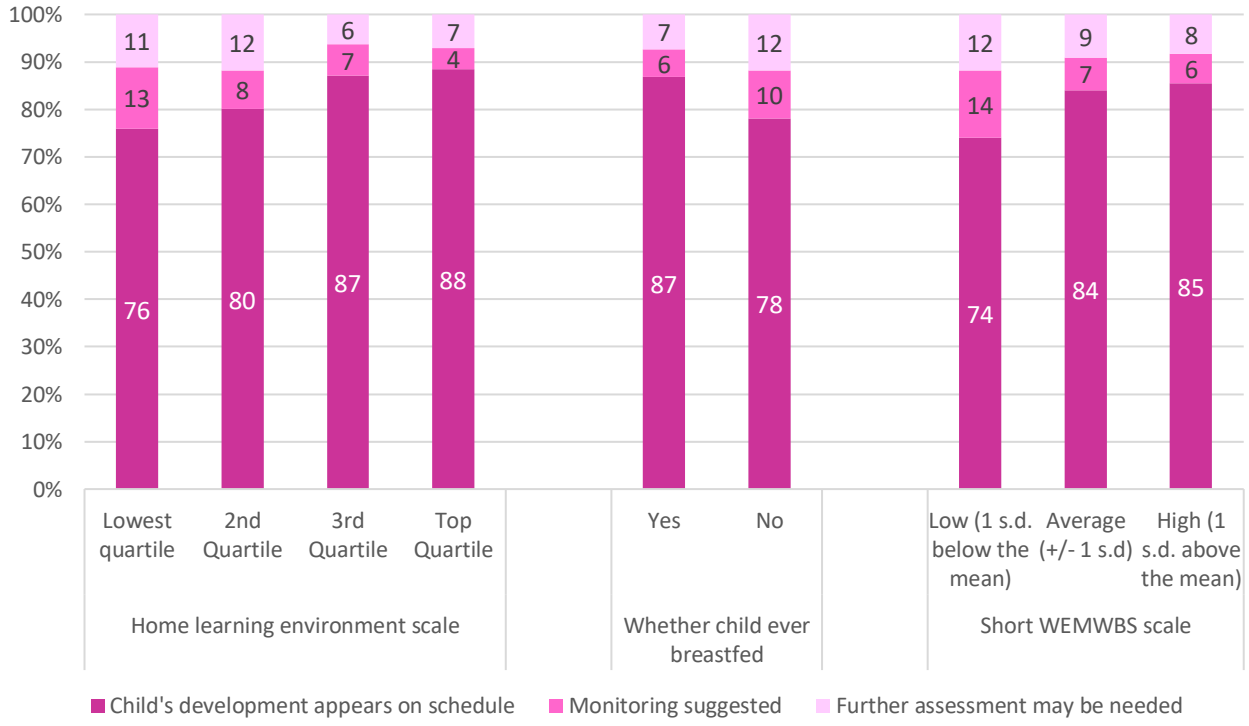
ASQ fine motor domain

As we have already seen, the ASQ fine motor domain was strongly associated with socio-economic status. It was also associated with many of the other risk factors that were examined that are potentially modifiable at a population level, if not an individual level. Sleeping through the night at least once a week (compared with never sleeping through the night) was associated with a child's development being deemed on schedule (Appendix Table C16). Children whose parents reported that they were coping well as a parent most or all of the time were more likely to be on schedule than those whose parents reported this was true less often and those who lived in the least chaotic homes, according to the shortened form of the confusion, hubbub and order scale (described in the section above) were more likely to be assessed as having their development on schedule (Appendix Tables C17 and C18).

Figure 21 demonstrates the relationship between the ASQ fine motor domain scores and three further risk factors, the child's home learning environment (HLE), whether the child was ever breastfed, and parental mental wellbeing. The home

learning environment is a measure of the frequency of certain learning activities, such as looking at books or reciting rhymes or songs done by the child with someone in their home environment. The proportion of children assessed as having fine motor development on schedule increased in line with an increase in the frequency of home learning activities, from 76% of children in the bottom quartile (i.e. those who did learning activities at home least frequently) to 88% of those in the top quartile. Children who had ever been breastfed by their mother were also more likely to be on schedule for development than those who had not (87% and 78% respectively). In addition, children of parents with low mental wellbeing were less likely than those of parents with average or above average mental wellbeing to be on schedule (74% compared with 84-85%).

Figure 21: ASQ fine motor domain by home learning environment (HLE) scale, whether child was ever breastfed, and parental mental wellbeing (short WEMWBS scale)

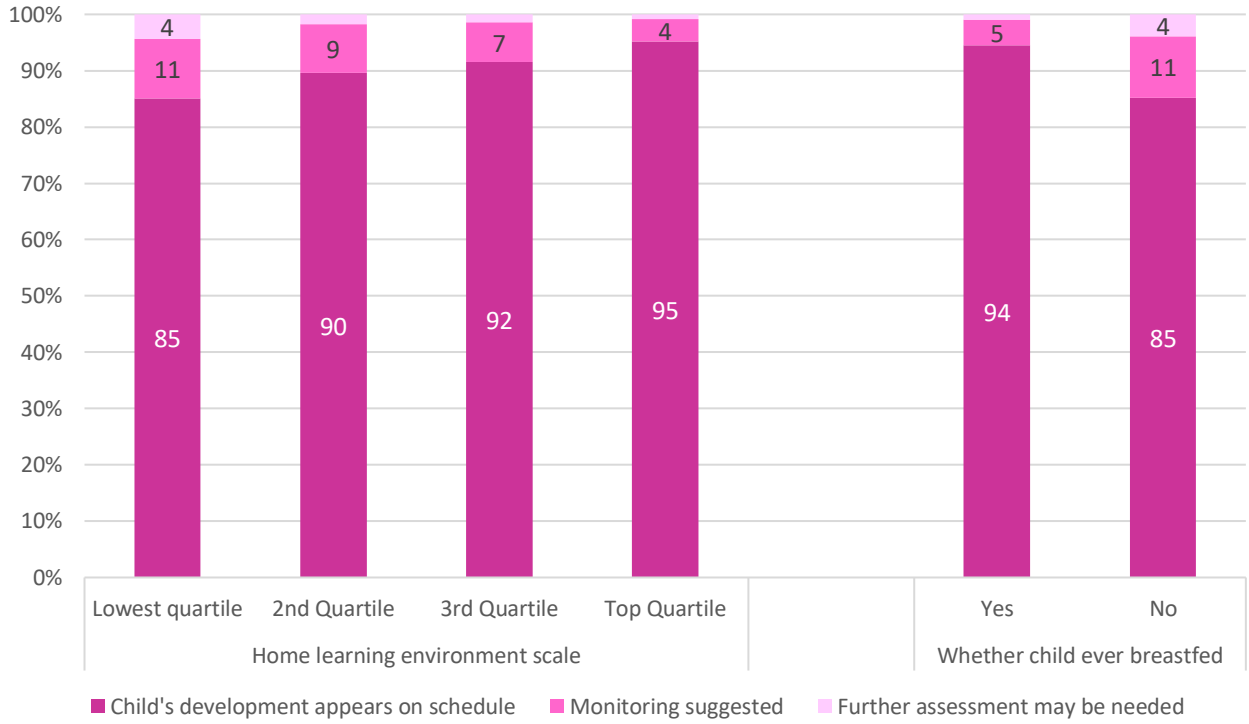


Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

ASQ problem solving domain

Figure 22 shows two associations between risk factors relating to the child's home life and scores on the ASQ problem solving domain. The proportion of children assessed as having their problem solving development on schedule increased from 85% among those who participated in home learning activities least frequently to 95% of those who participated in them most frequently. In addition, a higher proportion of those who were ever breastfed (94%) were on schedule than those who were never breastfed (85%).

Figure 22: ASQ problem solving domain by home learning environment scale and whether child was ever breastfed

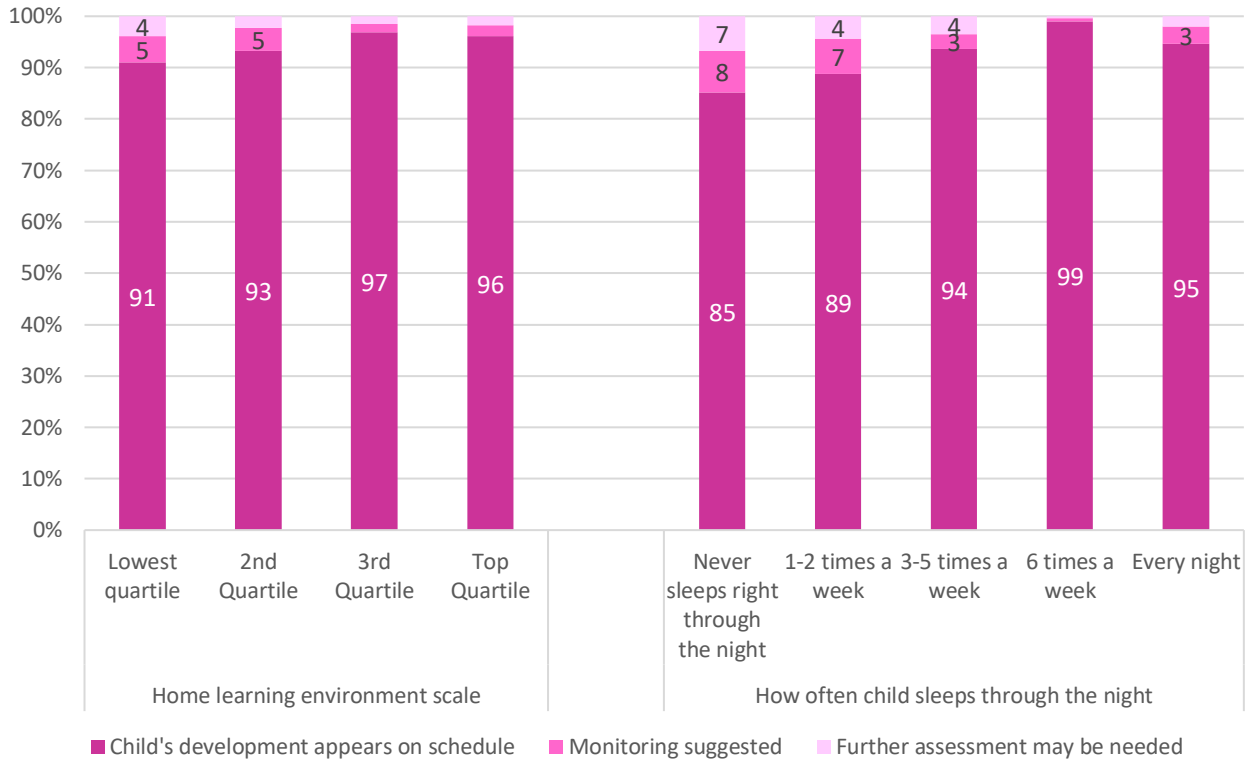


Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

ASQ personal-social domain

While ASQ personal-social scores had shown little association with socio-economic factors, they were associated with two factors related to the child's home life: the frequency with which the child slept through the night, and the frequency of home learning activities (Figure 23). Children who slept through the night more often were more likely to be on schedule than those who did so less often – 85% of those who never slept through the night were on schedule compared with 94-99% of those who slept right through at least three nights a week. As seen in relation to other domains, children who were engaged less frequently in home learning activities were also less likely than those who were engaged more frequently to be assessed as on schedule (91% of those in the lowest quartile compared with 96-97% in the top two quartiles).

Figure 23: ASQ personal-social domain by home learning environment scale and how often child sleeps through the night



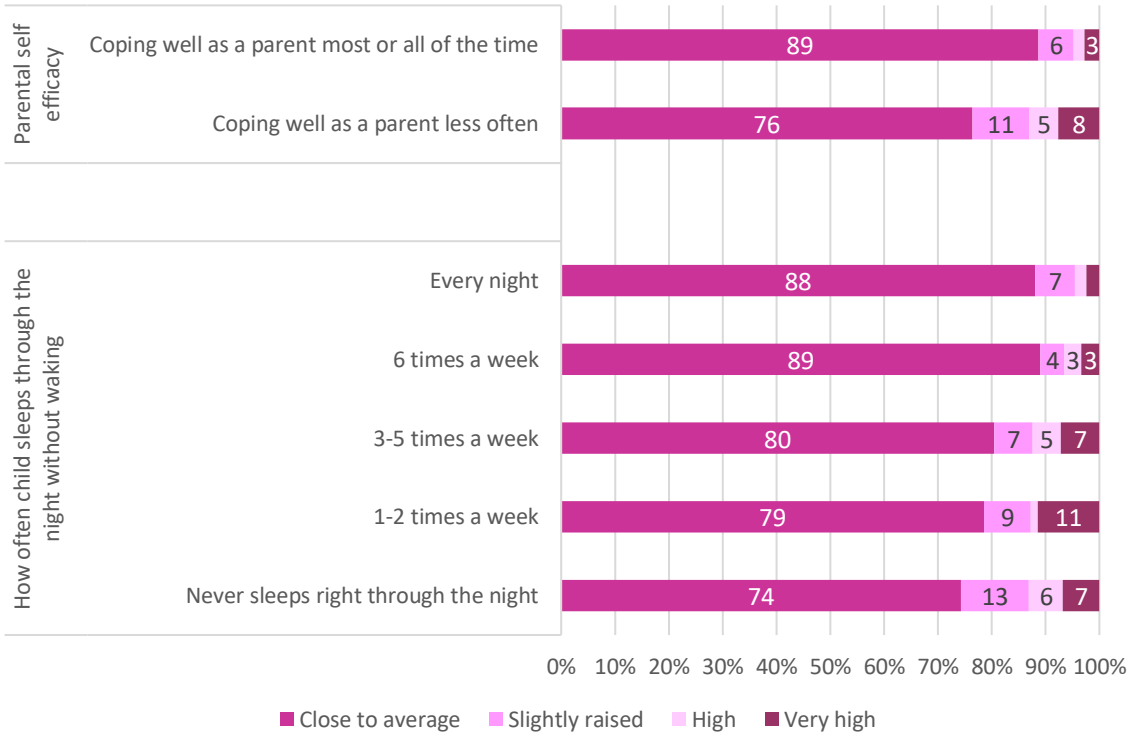
Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

SDQ total difficulties score

Children were more likely to have raised scores on the SDQ total difficulties scale if their parent had a longstanding physical or mental health condition (Table C19 in Appendix C), if they were in the lowest quartile for frequency of home learning activities (Table C20), or if they were never breastfed (Table C21).

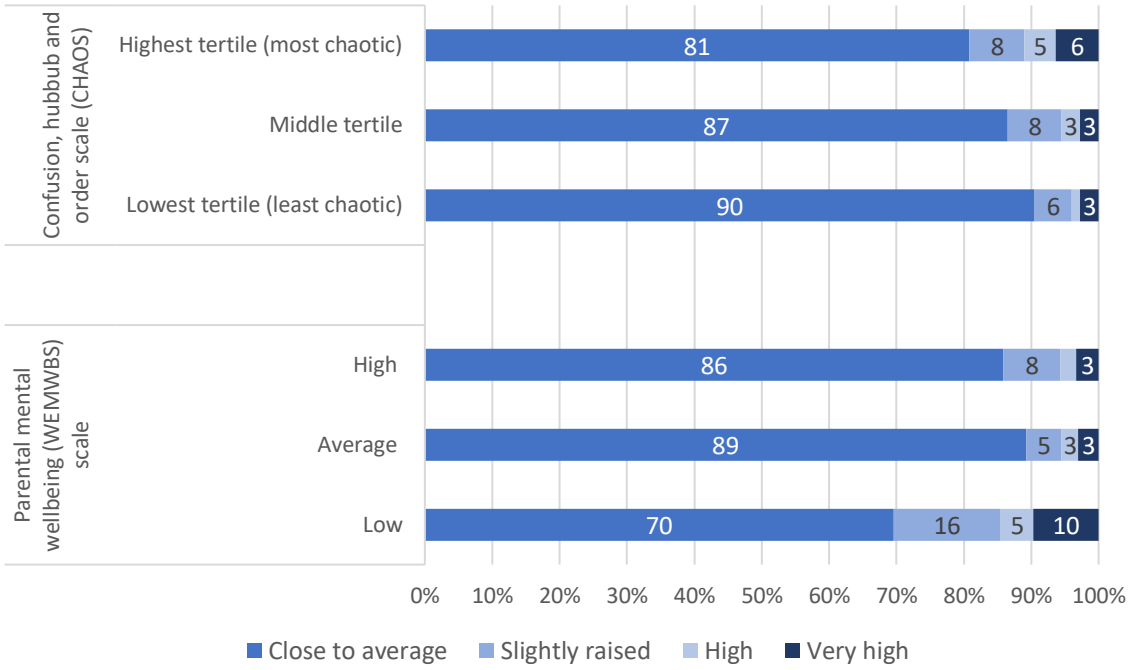
Figures 24 and 25 show four associations with a child's total difficulties score where the direction of causality is not at all clear, and may indeed be circular. Where parents felt that they were coping well most or all of the time, 89% of children had close to average total difficulties scores whilst where parents felt they were coping well less often, 76% of children had close to average scores. Of children who slept through the night most or every night, 88-89% had close to average scores compared with 74% of children who never slept through the night. Children who lived in the least chaotic homes (according to the shortened version of the confusion, hubbub and order scale) were more likely to have close to average scores on the total difficulties scale than those in the most chaotic homes (90% compared with 81%). Where parents had below average mental wellbeing (according to the shortened form of the WEMWBS scale, 70% of children were close to average on the total difficulties scale, compared with 86-89% of children of parents with average or above mental wellbeing.

Figure 24: SDQ total difficulties domain by parental self-efficacy and how often child sleeps through the night



Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Figure 25: SDQ total difficulties domain by parental mental wellbeing (short WEMWBS) and Confusion, Hubbub and Order scale



Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Key drivers of delayed development (using Ages and Stages Questionnaire)

Many of the factors we have looked at so far are associated with each other as well as with scores on the ASQ domains. For example, home learning activities are more common in households where the mother has higher levels of education. The same is true for breastfeeding. Hence there is an association between breastfeeding and the home learning environment, albeit an indirect one. This makes it difficult to identify whether it is the home learning environment, the breastfeeding, or the parental education that drives the child's development. Logistic regression analysis allows us to model scores on the ASQ scales, looking at multiple factors simultaneously. It can identify the strongest associations with the ASQ scores, which can generally be interpreted as the key drivers, as well as those which appear to be associated only because of relationships with other variables.

Table 9 shows the results of the regression analysis. Full details of the analysis are shown in Appendix D, together with information on how to read the tables. While controlling other factors, we can see that boys were more likely than girls to demonstrate delayed development on at least two domains of the ASQ. It should still be emphasised that, as seen earlier, on each the domains the vast majority of boys were on schedule, but the proportion of boys not on schedule was higher than the proportion of girls.

Children with a long-term health condition or disability were also significantly more likely to demonstrate delayed development after controlling other factors. This is not

surprising, given that such conditions were identified in either the keyworker questionnaire in terms of their potential for delaying development, or in the parent questionnaire as lasting, or expected to last for 12 months or more.

The next most significant factor in driving delayed development was having a parent with low levels of education. Two further factors included in Table 9 were statistically significant: being from a larger family of at least three children and not using English as the main or only language at home.

A number of other factors were included in the full model (see Table D1 in Appendix D). None of these showed independent significant associations with delayed development on two or more of the ASQ domains. This indicates that the differences we have observed earlier in terms of area deprivation and the number of parents in a household can, at least in part, be explained through those variables included in Table 9. Thus living in a deprived area and being from a single parent household are not in themselves drivers of delayed development, but some of the factors associated with them, such as lower levels of parental education are drivers of delayed development.

Table 9: Key drivers of demonstrating delayed development on at least two domains of the Ages and Stages Questionnaire

	Significance
Male	+++
Long-term health condition	+++
Two or more siblings	++
English not main / only language	++
Parent has no / lower school qualifications only	+++
Unweighted base	*1,301*

Base: All respondents (with responses to both parent questionnaire and keyworker observations, weighted)

+++ highly significant, ++ moderately significant, + marginally significant

Key drivers of raised levels of total difficulties (using Strengths and Difficulties Questionnaire)

The same type of analysis was conducted for raised / high scores on the the total difficulties scale of the Strengths and Difficulties Questionnaire. Full details of the model are included in Table D2 of Appendix D, with the key drivers highlighted in Table 10.

As with the previous model, both being a boy and having a long-term illness or health condition show strong associations with raised or high scores on the SDQ total difficulties scale, once other factors are controlled. In this model, having a parent with low mental wellbeing is also strongly associated with raised or high

levels of difficulties. The direction of this association, however, cannot be identified from the model. Parents with low mental wellbeing may find parenting more difficult, with knock-on effects for the child's social, emotional and behavioural development. At the same time, parents may find children whose development is delayed stressful, which affects their own mental wellbeing. In reality it is likely that the association goes both ways, suggesting a need to look at family wellbeing, as well as the individual wellbeing of both parents and children.

In this model none of the other predictors, such as area deprivation and number of parents, showed significant associations with raised or high scores on the total difficulties scale when controlling other factors.

Table 10: Key drivers of demonstrating raised or high scores on the total difficulties scale of the Strengths and Difficulties Questionnaire

	Significance
Male	+++
Long-term health condition	+++
Parent has low mental wellbeing	+++
Unweighted base	*1,313*
Base: All respondents (with responses to both parent questionnaire and keyworker observations, weighted)	

+++ highly significant, ++ moderately significant, + marginally significant

Parent outcomes

Economic activity

The second of the principal long-term aims of the expansion in nursery provision, as outlined in the introduction, is for an increase in parents' opportunities to be in work, training or study. The parent questionnaire collected baseline information about parents' economic activity, which will be compared with similar data once the expansion has been fully rolled out.

Parents were asked which, out of a range of economic activities, best described their situation in the past seven days. Table 11 summarises the responses to this question.

Table 11: Parent's economic activity*

What were you doing last week, that is the seven days ending last Sunday?	All
	%
Working 30 or more hours a week (including if currently on leave or sick)	31
Working fewer than 30 hours a week (including if currently on leave or sick)	38
On maternity/parental leave from an employer	5
Looking after home or family	54
Waiting to take up paid work already obtained	1
Out of work and looking for a job	4
Out of work, because of long-term sickness or disability	2
On a Government training or employment scheme	0
In full-time education (including on vacation)	4
In part-time education (including on vacation)	2
Wholly retired	0
Not in paid work for some other reason	4
Unweighted base	*1,376*

Base: All respondents (parent survey, weighted)

**Note: respondents were able to choose more than one response. As such, percentages will not total 100%.*

As can be seen, 'looking after home or family' was the option most likely to have been selected, with 54% of respondents saying they had done this in the past

seven days. This likely reflects that most of the respondents to the survey were women and, as discussed in the section on childcare, the majority also had a child in nursery for no more than around 15-16 hours a week. Around two-thirds of parents were in work with 31% reporting they worked 30 or more hours a week and 38% worked less than 30 hours a week.

Many parents reported doing more than one of the activities in the last week, in particular both working and looking after the home or family. As shown in Table 12, three-in-five (61%) of those who said they were looking after the family reported that they were currently working or on a government training scheme (including on maternity leave). A third of those in full-time employment (35%) and more than half of those in part-time employment (55%) described themselves as looking after the home or family. Small proportions also combined either work or looking after the home or family with full- or part-time education.

Table 12: Multiple economic activities

Those who describe themselves as looking after the home or family				
Only looking after home or family	**Also in education**	**Also in employment**	**Also in both employment and education**	***Unweighted base***
%	%	%	%	
37	2	57	4	*763*

Those who describe themselves as in full-time employment (30+ hours / week)				
Only in FT work	**Also in education**	**Also looking after the family**	**Also both in education and looking after the family**	***Unweighted base***
%	%	%	%	
64	1	33	2	*412*

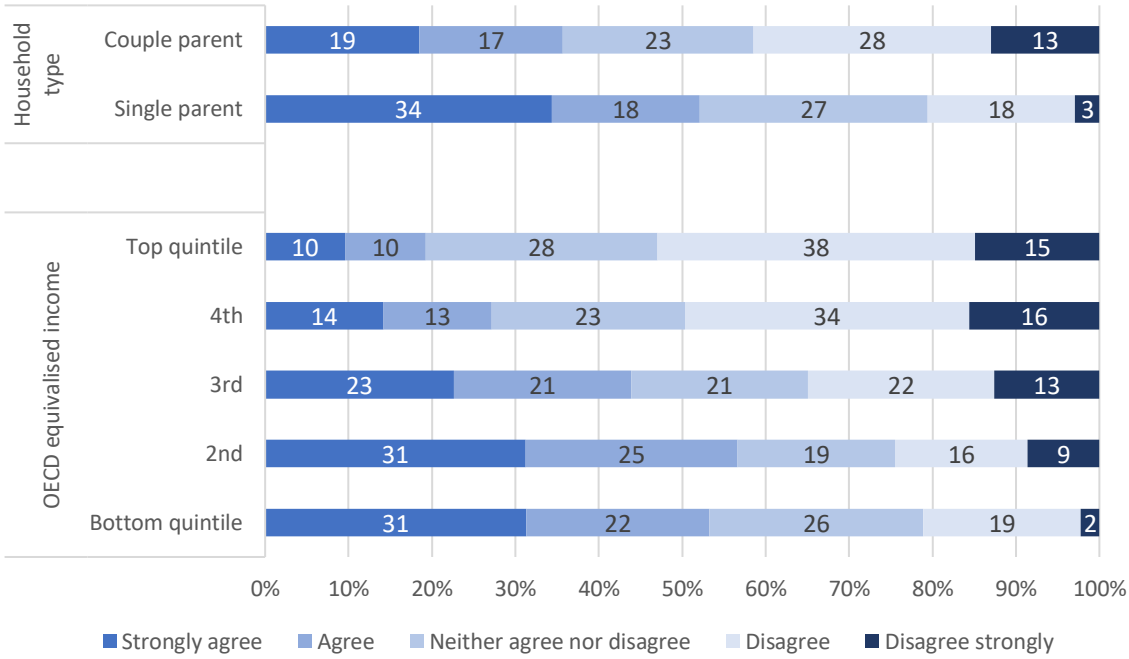
Those who describe themselves as in part-time employment (< 30 hours / week)				
Only in PT work	**Also in education**	**Also looking after the family**	**Also both in education and looking after the family**	***Unweighted base***
%	%	%	%	
42	2	51	4	*510*

Base: All respondents who reported themselves to be looking after the home or family; to be in full-time employment; and to be in part-time employment (parent survey, weighted)

Alongside asking respondents about their current economic activity, the parent questionnaire also asked respondents attitudinal questions on the relationship between childcare and their current employment situation.

All those who were currently in work or training were asked if they would work more hours if they could afford good quality childcare. Figure 26 compares responses by household income and whether the respondent lives in a one or two-parent household.

Figure 26: Whether would work more hours if could afford childcare by household type and household income

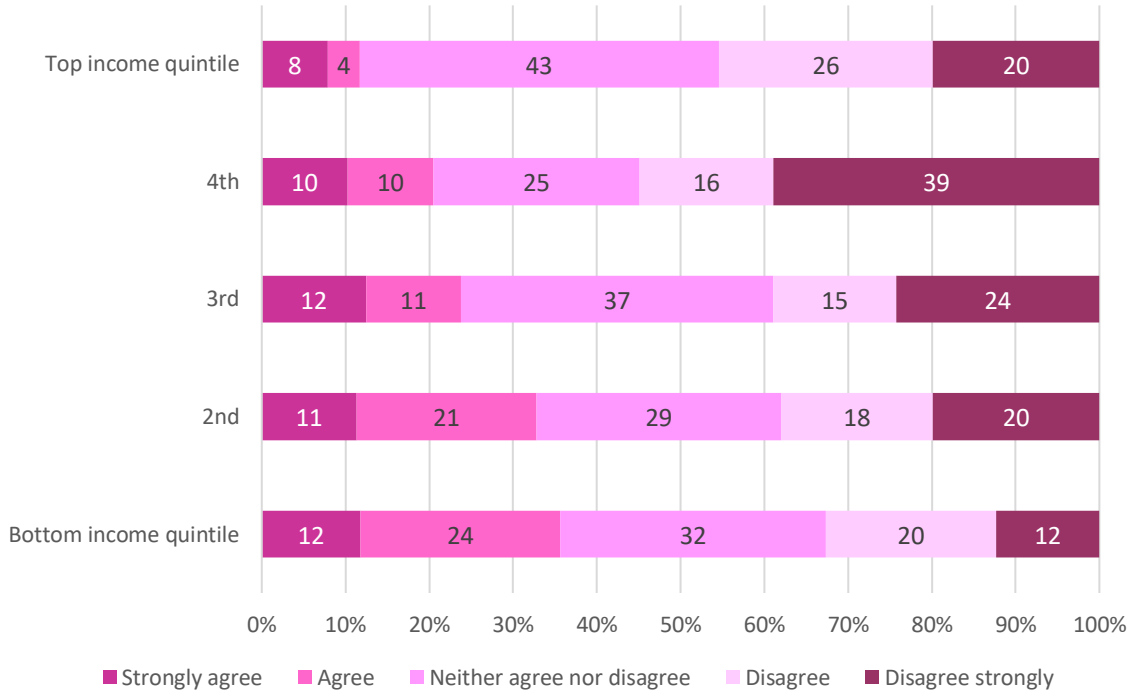


Base: All respondents in employment (parent survey, weighted)

In total, 38% of employed parents agreed they would work more hours if they could afford high quality childcare (21% strongly agree, 17% agree) with the same percentage disagreeing (27% disagree, 11% strongly disagree). Those with a lower household income were more likely to agree with the statement than those on higher incomes: 53% of those in the bottom income quintile agreed with the statement and 21% disagreed compared with 19% of those in the highest income group agreeing and 53% disagreeing. Single parents were also more likely to agree with the statement than those who were in a couple: 52% of single parents agreed with the statement and 21% disagreed compared with 36% of those in couples agreeing and 41% disagreeing.

A similar statement was presented to those who were not currently in work. They were asked how much they agreed or disagreed that “a lack of affordable, convenient, good quality childcare is one of the main reasons I’m not working at the moment”. Only 28% of those not in work agreed with this statement (11% strongly agree, 17% agree), while 40% disagreed (20% disagree, 20% strongly disagree). Figure 27 shows that the pattern by income in response to this question was similar to that for the statement given to those in work. Those on lower incomes were more likely to agree that they were not working because of a lack of affordable childcare than those on higher incomes (36% of those in the lowest household income quintile agreed compared with 12% of those in the highest quintile).

Figure 27: Whether not working because of a lack of affordable, convenient, good quality childcare by household income

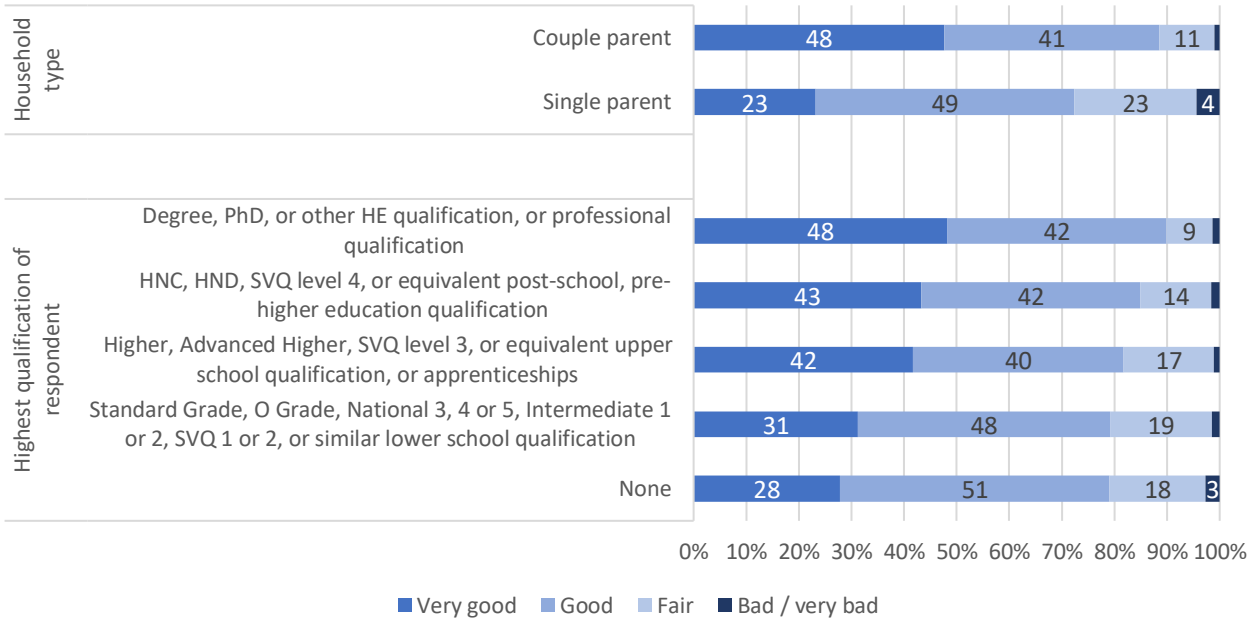


Base: All respondents not in employment (parent survey, weighted)

Parental health and wellbeing

As well as their child's health, parents were asked about their own general health. Most reported this to be good (42%) or very good (43%). Figure 28 shows that single parents tended to report worse health than those in two parent families (72% good or very good, compared with 89% of dual parents). Parents with lower levels of education also tended to report worse health (79% good or very good for those with no or only lower school qualifications, compared with 90% for those with a university degree or equivalent). There was also a general increase in self-reported good health with increasing income and with decreasing levels of area deprivation, although the patterns were not straightforwardly linear (see Tables C22 and C23 in Appendix C).

Figure 28: Parent's general health by household type and highest educational qualification



Base: All respondents (parent survey, weighted)

The survey also asked parents whether they had any physical or mental health conditions or illnesses lasting, or expected to last for 12 months or more. Eighteen percent of parents reported such a condition. This was more common among single parents than those living in two parent households (26% compared with 16%) and among those on lower incomes than those on higher incomes (25% in the lowest income quintile compared with 13-15% in the top three quintiles. See Figure 29).

Figure 29: Parent's longstanding illness / health condition by equivalised household income and household type

Base: All respondents (parent survey, weighted)

Parents who reported having a longstanding health condition or illness were asked whether this limited their activities in any way. Three-quarters (73%) of parents with a condition said that it did limit their activities to some extent, although only one-in-seven (14%) reported that it limited their activities a lot. Overall, 13% of all parents had a longstanding limiting health condition.

Those with a longstanding condition were also asked how it affected them (see Table 13). Three-fifths (61%) said it affected their mental health or exhibited as social, emotional or behavioural issues. Less commonly, the condition affected mobility (20%), stamina or breathing (19%) or learning, concentrating or remembering (17%). Seventy-one percent of parents with a long-term condition mentioned that it affected them in just one of the ways listed in Table 13, while 20% mentioned two different ways and 10% three or more. Of those with a mental health or social, emotional or behavioural condition, 36% mentioned additional issues.

Table 13: How longstanding condition or illness affects parent*

	All
	%
Vision	5
Hearing	3
Mobility	20
Learning, concentrating or remembering	17
Stamina or breathing difficulty	19
Mental health, social, emotional or behavioural issues	61
Other impairment(s)	19
Unweighted base	*250*

Base: All respondents with a long-term condition (parent survey, weighted)

*Note: respondents were able to choose more than one response. As such, percentages will not total 100%.

The Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) is an established survey instrument for examining differences in population mental wellbeing in adults. It is not used as a clinical assessment tool, so scores on the scale have no meaning in isolation. The parent questionnaire used the shortened form of the scale, asking seven questions about how the respondent had been feeling over the previous two weeks. Responses to the questions are combined to produce a mental wellbeing score. The average score for all parents was 24.6. Analysis considered how average scores varied amongst parents with different characteristics. As shown in Table 14, single parents had significantly lower mean levels of mental wellbeing than those in two parent households. Those in the bottom two income quintiles also had lower levels than those in the top two quintiles.

For the purposes of the analysis of ASQ and SDQ scores discussed earlier, low mental wellbeing was defined as being one standard deviation below the mean – i.e. a score of below 20.5, with the mean score on the scale being 24.6. This has no clinical significance, but is useful for making comparisons between sub-groups.

Table 14: Mean parental mental wellbeing (short-WEMWBS) by household type and equivalised household income

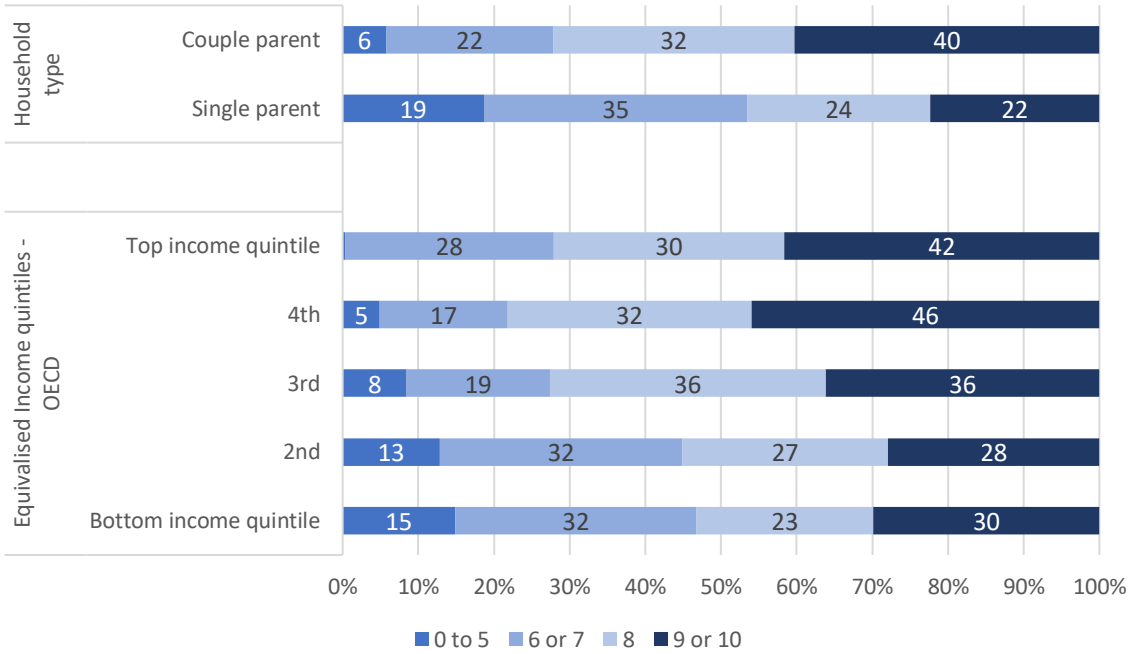
	Mean SWEMWBS score	Confidence interval	*Unweighted base*
All parents	24.6	(24.3 - 24.9)	*1,357*
Household type			
Single parent	23.7	(22.9 - 24.4)	*269*
Two parent	24.9	(24.6 - 25.1)	*1,080*
Equivalised household income			
Bottom income quintile	24.2	(23.4 - 25.0)	*274*
2nd	23.6	(23.0 - 24.2)	*286*
3rd	24.7	(24.1 - 25.3)	*247*
4th	25.3	(24.6 - 25.9)	*264*
Top income quintile	25.4	(24.8 - 26.0)	*169*

Base: All respondents (parent survey, weighted)

As a separate measure of parental wellbeing, respondents were asked, on a scale of 0 to 10, with 0 being very dissatisfied and 10 very satisfied, how satisfied they were with their life as a whole nowadays. The majority of parents reported high life satisfaction with more than a third (37%) of parents responding with 9 or 10 and a further third (30%) choosing 8. Only 8% gave a response of 5 or below.

As with the previous measure, household type and household income were significantly associated with life satisfaction. Figure 30 shows that single parents were more likely to be dissatisfied with their life than couple parents (19% rating it as 0 to 5 compared with 6%). Conversely, they were less likely to be highly satisfied with their life (22% rating it 9 or 10, compared with 40% of couple parents). Dissatisfaction fell with increasing income - 15% of those in the lowest income group rated their life satisfaction between 0 and 5 compared with less than 1% of those in the highest income bracket.

Figure 30: Parent's life satisfaction by household type and equivalised household income



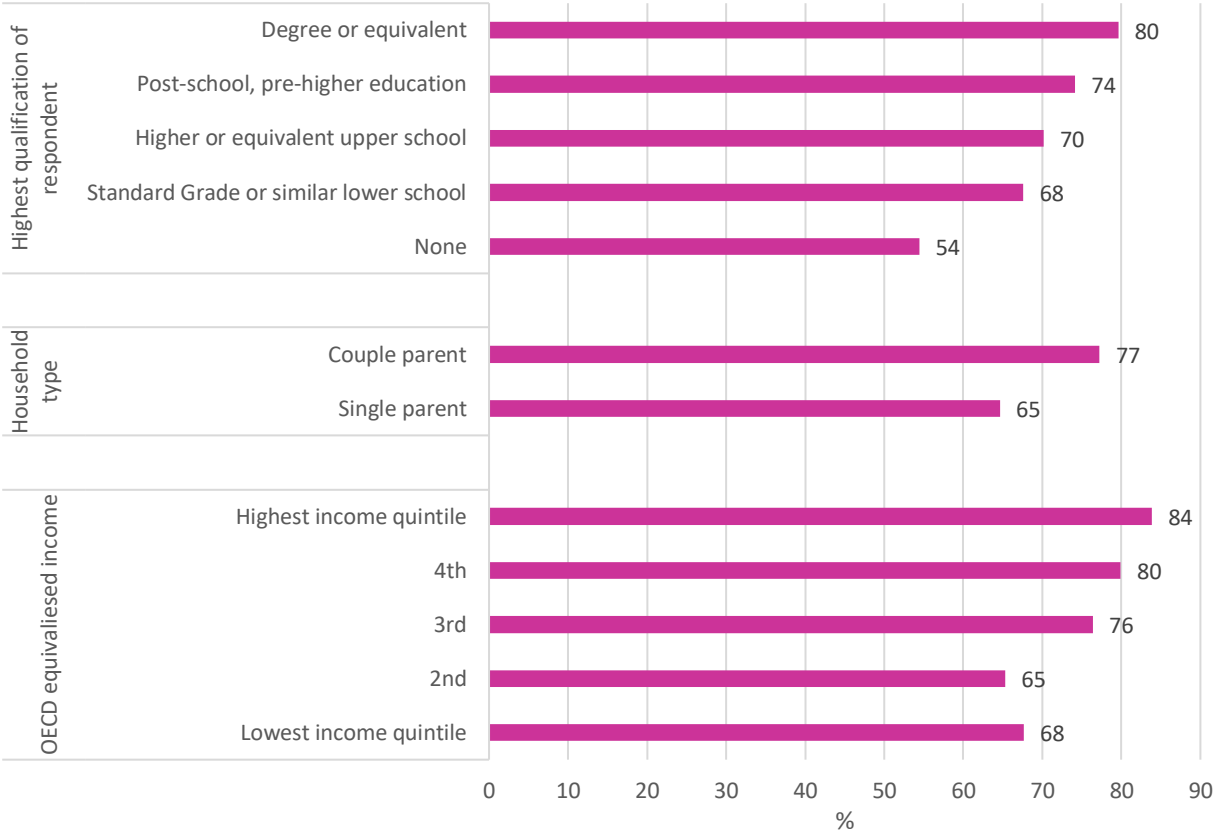
Base: All respondents (parent survey, weighted)

As a measure of parenting self-efficacy, parents were asked to choose a response from the following statements describing how they felt they were coping as a parent:

- I always feel I am coping really well - things never get on top of me;
- Most of the time I feel I am coping pretty well;
- Sometimes I feel I am coping but sometimes things get on top of me;
- Most of the time I feel I am not coping very well;
- I feel I am not coping at all these days.

Three-quarters of parents (75%) said that they were coping well most of the time or all of the time, with only 1% disclosing that they were not coping well for much or any of the time. As shown in Figure 31, confidence in parenting rose with increasing levels of education - 54% of those with no formal qualifications reported they coped well all or most of the time compared with 80% of those with a degree or equivalent qualification. The proportion of parents reporting they coped well also increased with income - from 65-68% of those in the bottom two income groups to 84% of those in the highest group – and parents in couple households were more likely than single parents to report that they coped well most or all of the time (77%) (65%).

Figure 31: Parent feels they are coping well most or all of the time, by highest level of education, household type and household equivalised income

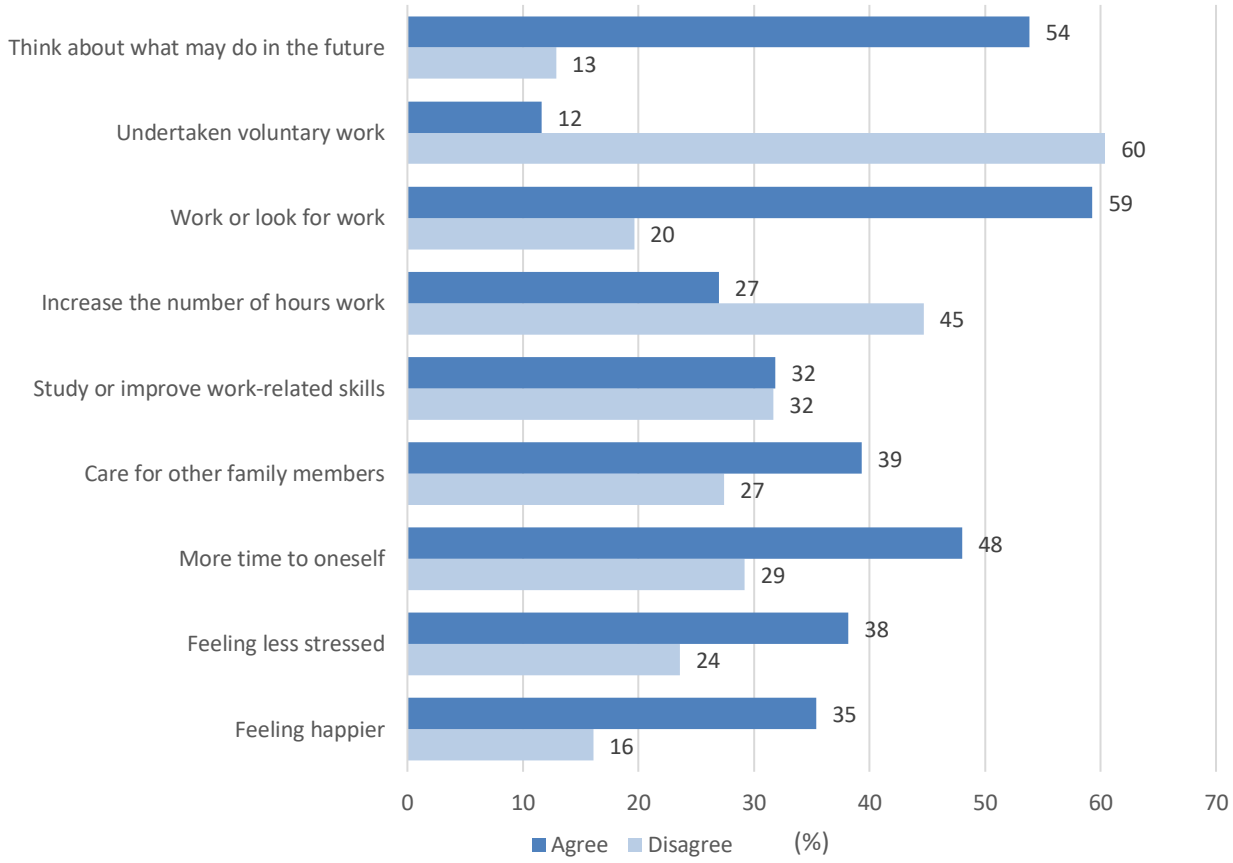


Base: All respondents (parent survey, weighted)

An important aspect of the study is to identify how having a child in nursery impacts upon parents, through the time it frees up for other activities and how it affects their wellbeing. Parents were asked how much they agreed or disagreed that because their child was in nursery they had participated in particular activities or experienced certain feelings. A summary of the responses to these questions is provided in Figure 32.

The majority of parents said that they had been able to work or look for work (59%), and that they had been able to think about what they might do in the future (54%). A quarter (27%) said that they had been able to increase the number of hours they work while around half (48%) said they had more time to themselves. A third (32%) had used the time freed up by having their child in nursery to study or improve work related skills while a slightly larger proportion (39%) had used the time to care for other family members. A much smaller proportion (12%) had used it to undertake voluntary work. Just over a third agreed that they were feeling less stressed because their child was in nursery (38%) and that they were feeling happier (35%).

Figure 32: Activities done/perceived change in feelings because of child being in nursery



Base: All respondents (parent survey, weighted)

Throughout this section, the data has shown that single parents tend to be in less advantaged circumstances and have poorer physcial and mental health outcomes than parents in couple families. Additionally, a greater proportion of single parents indicate they would like to work more hours if they could afford childcare. Table 15 shows that where nursery care is provided for their children, a greater proportion of single parents than couple parents have been able to study or improve their work-related skills as a result (39% compared with 30%). Furthermore, a greater proportion of single parents than couple parents also reported having been able to think about what they may do in the future (65% compared with 51%). Reporting having been able to think about what they may do in the future was also more common amongst parents living in more deprived areas - 66% of those living in the most deprived areas gave this response compared with 41% in the least deprived areas. Other differences in Table 15 are not statistically significant.

Table 15: Percentage agreeing activities done/perceived change in feelings because of child being in nursery by household type and area deprivation

	Think what may do in future	Feeling less stressed	Able to look for work	Study/ train	*Base: All respondents* (parent survey)*
Household type					
Single parent	65	41	54	39	*261*
Couple household	50	37	60	30	*1,036*
Area deprivation (SIMD)					
Most deprived 20%	66	42	54	35	*395*
2nd	56	40	61	28	*239*
3rd	59	34	64	34	*208*
4th	48	37	65	34	*219*
Least deprived 20%	41	37	54	29	*237*

*Note: Base is for “Feeling less stressed”. Bases for other questions may vary slightly.

Characteristics of ELC

To gather information on the characteristics of ELC settings, inspectors from the Care Inspectorate (acting as observers independent of their regulatory roles) conducted observations of 150 settings using the most recent version of the Early Childhood Environment Rating Scale (ECERS-3). The ECERS was developed in the United States by the Environment Rating Scale Institute along with the Infant / Toddler Environment Rating Scale (ITERS). Both are widely used in English speaking countries. In the United Kingdom, ECERS has been used in both the Effective Provision of Pre-School Education (EPPE) study and in the more recent Study of Early Education and Development (SEED) in England [32]. In Scotland, ECERS was used as long ago as 1994[33] and has seen many applications since that time.

Both environment rating scales have a positive international reputation as a way of assessing the quality of provision in a 'snap-shot' observation and as a tool which gives researchers access to the everyday experiences of children in their educational settings. The scales have high reliability at indicator and item level when used by trained observers[34]. Validity is also high in terms of their relationship to other ways of assessing quality and to measures of children's outcomes. Further, in conjunction with academics and the Care Inspectorate, some minor amendments were made to ensure that the ECERS-3 was reflective of the aspects of quality that are expected in Scotland (e.g. that rainfall should not prevent outdoor play).

ECERS-3 was used for a number of reasons: it centres on the experience of the child in the setting; it allows for the effect of setting quality on child outcomes to be controlled for; and it is relatively easy to administer given that only one three hour observation is required. This tool can also be used to see if particular characteristics of settings contribute to differential outcomes in children. Further, ECERS-3 is designed for use in settings where most children are aged between three and five and and as such, it was deemed suitable for use with the ELC leavers involved in Phase 2 of the SSELC.

It is important to note that these tools are not the only method of assessing setting quality in Scotland. Indeed, the Care Inspectorate ratings provide a broader measure of the quality of practice and policy within settings that have also been found to be related to children's outcomes in Scotland.

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[32] See Melhuish, E. & Gardiner, J. (2018) Study of Early Education and Development (SEED): Impact Study on Early Education Use and Child Outcomes up to age four years Research Report: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/738725/SEED_Impact_Age_4_Report_September_2018.pdf

[33] Stephen, C. and Wilkinson, J.E. (1995) 'Assessing the Quality of Provision in Community Nurseries', *Early Child Development and Care*. 108: 83-98.

[34] Care Inspectorate staff attended training with academic colleagues on how to use the ITERS-3 and completed their first observation in pairs to ensure consistency of scoring.

As with the Care Inspectorate inspection approach, the setting observations focussed on outcomes. However, the methodology differed in that the ECERS-3 tool was used to observe for three hours, with no consultation with setting staff and no professional dialogue or explicit feedback provided. This was because the observations were to be a snapshot to inform the SSELC and control for variation in child outcome data, rather than serving as an assessment of an individual setting's quality. During the ECERS-3 observations, observers looked at the six domains specifically for four- and five-year-olds. In contrast, during a formal inspection, Care Inspectorate inspectors consider a range of areas that impact on experiences for all children attending the setting, not only the four- and five-year-olds. The key areas covered during a formal inspection are likely to include some or all of the domain areas but can also cover other aspects of the provision to evaluate the overall quality of the setting.

The ECERS-3 scale comprises 35 items across 6 different subscales: space and furnishings; personal care routines; language and literacy; learning activities; interaction and programme structure.

- Space and furnishings includes observation of: indoor space; furnishings for care, play, and learning; room arrangement; space for play; space for privacy; display for children; and play equipment.
- Personal care routines includes observation of: meals and snacks; toileting; health practices; and safety practices.
- Language and literacy includes observation of: encouraging children to expand vocabulary and use language; encouraging children to communicate; staff use of books with children; and encouraging children's use of books and familiarity with print.
- Learning activities includes observation of: fine motor; art; music and movement; blocks; dramatic play; nature and science; maths materials, understanding of written numbers and the use of maths in daily events; appropriate use of technology; and promoting acceptance of diversity.
- Interaction includes observation of: supervision of gross motor play; individualised teaching and learning; peer interaction; staff-child interaction; and discipline.
- Programme structure includes observation of: transitions and waiting times; free play; and group play activities.

In line with ECERS-3 guidance, each subscale is scored from 1 to 7. These scores are calculated by averaging the score for each item within the subscale. Each of the 35 items are also scored from 1 to 7. These scores are calculated using the indicators contained within each individual item. Indicators are grouped under scores of 1 (inadequate), 3 (minimal), 5 (good), and 7 (excellent), with each indicator providing an example of what should be observed relevant to each score. Indicators themselves are scored as yes or no depending on whether the indicator has been observed. In some cases, observers are able to record indicators or items

as not applicable; these are then excluded when calculating item or subscale scores. A score of 1 is given if any indicator grouped under 1 is scored yes. For an item to score a 7, each indicator grouped under 7 must be scored yes.

In addition to the main indicators, background data was collected during observations on the structure of the setting, including the number of children and staff present at the time of observation and whether there was freeflow[35] access to outdoor space.

Of the 150 settings observed, nearly two-thirds (63%) had just one room for four- and five-year olds. A further 27% had two rooms, 9% had 3 rooms and 1% (two settings) had more than 3 rooms. The number of four- and five-year olds present on the day of observations ranged from 3 to 88. Children had access to outdoor space in all settings, and this was freeflow in two-thirds (65%) of cases.

Table 16 summarises scores on each of the ECERS-3 subscales. Settings scored highest on the interaction subscale, with 79% scoring 5 or above. The majority of settings also scored at this level on the personal care routines (65%), the space and furnishings (59%) and the programme structure (59%) subscales. It should be noted however, that an average score of 5 on items within a subscale still indicates room for improvement on multiple items within the scale. On two of the subscales (space and furnishings and learning sctivities) no settings scored the maximum 7, and of the other four, the highest proportion achieving the maximum, indicating 'excellent' on all items, was 10%.

Table 16: Percentage of settings with score 1 to 7 by ECERS-3 subscale

		ECERS Score							*Base: All settings observed*
		1 < 2*	**2 < 3**	**3 < 4**	**4 < 5**	**5 < 6**	**6 < 7**	**7**	
Space and Furnishings	%	-	3	12	25	35	25	-	*150*
Personal Care Routines	%	-	4	9	22	21	38	6	*150*
Languages and Literacy	%	1	11	23	36	13	14	2	*150*
Learning Activities	%	5	28	33	27	7	-	-	*150*
Interaction	%	-	2	3	16	30	39	10	*150*
Programme Structure	%	2	3	12	24	21	29	9	*150*

* Settings' mean score for each subscale was categorised based on the highest score fully achieved e.g. if a setting scored 4.5 for the 'Space and Furnishings' subscale, they would be categorised as '4 < 5' rather than rounding up to 5. This decision was made in consultation with academic colleagues and the Care Inspectorate.

On the language and literacy subscale, only 29% of settings scored 5 or above, while overall performance was weakest on the learning activities subscale, with only 7% scoring 5 or above, and 33% scoring below 3.

[35] Freeflow play allows children to move freely indoors and outdoors as they please.

Only top-level analysis of the ECERS-3 data has been conducted for this report. Future analysis will consider associations between setting characteristics and child outcomes.

Summary and conclusions

This report was based on data from the Phase 2 of the Scottish Study of Early Learning and Childcare, which focussed on children in their last term of ELC. Together with findings from Phase 1 and Phase 3, the final phase of baseline data collection, it will provide a baseline from which to measure change once the ELC expansion in Scotland is complete. The cohort for Phase 2 consisted of children aged four and five who were eligible for receipt of 600 hours of funded ELC and were expected to start school in August 2019. The sample was designed to be representative of all such children accessing ELC in Scotland, with a degree of oversampling in deprived areas. Because of the very different nature of the sample at Phase 1, findings from this and the previous report are not comparable, although the two reports are structured in a similar way.

The results from Phase 2 will act as a baseline for assessing the impact of expanded ELC provision on children at the end of their pre-school year through comparison with data collected in later phases of the evaluation. This report is intentionally descriptive in nature – summarising the data collected and identifying some basic relationships between variables. It has not attempted to provide a comprehensive analysis of the relationship between use of funded ELC and child or parent outcomes. Furthermore, the majority of the analysis has been bivariate – examining the relationship between two variables at a time. As such, the well documented and often powerful influence of socio-economic background on outcomes and experiences has not consistently been controlled for and some of the relationships described may be attributed to this effect. As a result, results should be interpreted with caution. Despite this caveat, the data nevertheless provide an important initial view of the characteristics, experiences and outcomes of parents and children who have reached the end of their time receiving 600 hours of funded early learning and childcare and are now preparing to start school.

The families who took part in the survey at Phase 2 were representative of families with children in ELC across Scotland. To improve the analysis, there was a deliberate over-sampling of nurseries in deprived areas. This meant an adequate number of children living in deprived areas was included in the sample. The data was adjusted, via the survey weights, to account for this oversampling. This ensures the findings are nationally representative. In terms of income, education and ethnicity, characteristics of the sample using the weighted data were as expected: incomes were equally spread throughout the deciles, nearly half of respondents had a degree and 95% were white.

Most parents found their ELC setting accessible and nearly all engaged with the setting and its staff in a range of ways including discussing the child's progress, visiting the child's room and attending parents' evenings. Much smaller numbers of parents also received support from the nursery in other ways - for example with benefits issues, or in learning a new skill – this was more common amongst single parents and those with lower levels of education. Parents overwhelmingly recognised the benefits to their children of attending nursery, particularly in terms of their socialisation and education. Most also saw benefits to themselves with around

two-thirds saying having their child in nursery allowed them to work, study or train. Disadvantages were rarely mentioned; where they were they tended to be around the flexibility and duration of nursery hours and how this limited parental employment patterns.

Nearly half of families used another provider of childcare alongside their ELC setting with grandparents being the main additional provider in the majority of cases. Working parents were particularly likely to require such extra childcare.

The majority (more than 80%) of children were assessed as being on on schedule in relation to each of the developmental domains covered by the Ages and Stages Questionnaire. This is an expected finding for a nationally representative sample of this nature. Boys fared worse than girls on all five of the domains, a trend which is commonly found in research into children's development, although it should still be recognised that for each of the domains, the vast majority of boys as well as girls were on schedule. Children in deprived areas also fared worse on some of the domains. These patterns were similar in relation to children's social, emotional and behavioural development, as measured by the Strengths and Difficulties Questionnaire.

While most children's development was as expected for their age, this was not the case for all. Scores on the SDQ and ASQ scales tended to be highly correlated, indicating that many of those children whose development was not on schedule in one area were more likely to not be on schedule in others. Settings therefore need to be able to assess and provide a range of support for children with multiple and diverse needs, many of whom may also live in households facing a range of challenges and disadvantage including poverty and low parental mental wellbeing.

Regression models were used to identify the key drivers of developmental delays, as assessed by the ASQ and SDQ scales. In both models being a boy and having a long-term health condition were highly significant factors in determining delays. Having a parent with low mental wellbeing was also significant in the SDQ model, while a low level of parental education was significant in the ASQ one. Once these were taken into account, two other factors showed significant associations with child outcomes: having two or more siblings, and being in a home where English is not the main / only language. Area deprivation showed no statistically significant association once other factors were taken into account. One of the aims of the increase in nursery provision is to narrow the attainment gap between children living in deprived areas and other children. This finding does not suggest that the gap is not real, only that it can be explained, at least in part, through associations between deprivation and the other factors identified in the models. The data suggest that supporting parental wellbeing, education and understanding of English are ways to help narrow the gap.

Regular engagement in home learning activities such as parent-child reading is known to have a positive influence on children's development. Encouragingly, more than half of parents had spoken to someone at the nursery about how to support their child's learning at home and participation in such activities was common for almost all children in the cohort. However, not all children had been engaged in

these activities to the same extent. In particular, boys, children of less well-educated parents and those in single parent households were slightly less likely to have done so.

Around two-thirds of parents were in employment by this late stage of their child's nursery career. However, more than a third of these agreed that they would work more hours if they could afford good quality childcare. More than a quarter of those who were not working also said that one of the reasons they were not working was because of a lack of affordable, convenient, good quality childcare. Both of these figures were higher among low-income households. For parents like these, the expansion in hours has significant potential to improve their ability to take up employment or training, or extend their existing working hours.

The time a child is in nursery offered many other opportunities for parents. More than half said it gave them time to think about the future, and a third had been able to study or improve work-related skills. Slightly larger proportions had been feeling less stressed and had been feeling happier.

While most parents expressed relatively high levels of life satisfaction and wellbeing, single parents and those on low-incomes tended to report being less content. It is these groups, however, that appear likely to benefit the most from an expansion in hours. They were more likely to report wanting to work more hours, to be thinking more about the future and to be studying to improve their skills.

Appendix A – SSELC Partnership

The Scottish Study of Early Learning and Childcare, although led by the Scottish Government, is a collaborative research project that has drawn on the invaluable expertise of a number of individuals and organisations throughout Scotland and beyond, including:

Local Authority Early Years Leads

Care Inspectorate

Early Years Scotland

Education Scotland

National Day Nursery Association

NHS Health Scotland

Scottish Childminding Association

Professor Aline-Wendy Dunlop, University of Strathclyde

Professor Alison Koslowski, University of Edinburgh

Professor James Law, University of Newcastle

Professor James Lewsey, University of Glasgow

Dr Louise Marryat, University of Edinburgh

Dr Christine Stephen, University of Stirling

Appendix B – Methodology

Aims

Phase 2 of the SSELC was designed to provide baseline data on several specific child and parent outcomes as well as information about socio-economic characteristics, family and household circumstances, characteristics of childcare use and a range of additional circumstances, experiences and behaviours known to be associated with child outcomes. In addition, observations were made to provide a snapshot of the everyday experiences of children in their ELC settings and to generate data in order to control for the effect of settings on children's outcomes in the study.

Sampling

The cohort consisted of children aged between 4 years 3 months and 5 years 6 months[36] who would be starting P1 in August 2019 ('ELC leavers') and who were receiving up to 600 hours of government-funded or local-authority-funded ELC provision, and the parents of those children. Participants were recruited via ELC settings in 30 local authority areas.

The required sample size was determined by estimating the difference in ASQ scores on the communications domain between four- and five-year-old children living in the least and most deprived areas across Scotland and calculated on the basis of the ability to measure a closing of this difference. A main sample and two reserve samples of ELC settings were drawn separately for deprived and non-deprived areas. As some local authorities were unable to identify which settings were still providing 600 hours at the time of drawing the sample, more settings than expected in the main sample proved to be ineligible for this reason. Consequently both reserve samples were used. This did not affect the geographical representativeness of the achieved sample.

Within those local authorities still offering 600 hours of funded ELC and willing to participate, a two-stage, 'cluster' sampling approach was then taken in order to identify the sample: the first stage involved the selection of settings and the second stage involved the selection of children within settings. Up to 10 children were selected within each sampled setting. In settings with fewer than 10 children, all parents of eligible children were invited to participate. In settings with 10 or more children, 10 children were selected at random by ELC staff following instructions from the research team. Only parents of the selected children were then invited to participate.

[36] Those aged above 5 years 3 months were those who had deferred entry into primary school.

Unlike Phase 1, the Phase 2 achieved sample is nationally representative[37] of ELC leavers in settings providing 600 hours of state-funded ELC. To ensure data was collected from a large enough sample of children living in deprived areas, settings in the 20% most deprived areas (based on SIMD score) were deliberately oversampled.

Data collection

Data were gathered on children in the cohort via three methods: a survey of parents / carers; a survey of the children's ELC keyworkers (primarily to measure child development) and observations of ELC settings attended by sampled children carried out by Care Inspectorate inspectors[38].

Within participating settings, all children within the specific age range who would be starting P1 in August 2019 were eligible for inclusion in the study, irrespective of whether they received all of their funded entitlement at that ELC setting. Parents were recruited by ELC staff and provided with information about the study before being asked to complete a paper self-administered questionnaire that collected a wide range of information about themselves, their child and their household. Parents were also asked for their permission for the child's keyworker to complete a questionnaire about the child's development. This largely consisted of the Ages and Stages (ASQ)[39] and Strengths and Difficulties (SDQ)[11] questionnaires but also collected information about the number of hours the child attended the ELC setting in the previous week.

Fieldwork was conducted in May and June 2019. Response rates to the surveys are not easy to estimate because information about the eligibility of every setting was not available. Questionnaires were sent to 345 ELC settings and at least one questionnaire was returned from 223 of these. Many of the other 122 reported that they were not eligible for inclusion in the sample. A total of 1,382 questionnaires were received from parents / carers and 1,846 from keyworkers. This gave a total of 1,318 paired questionnaires, 666 from settings in deprived areas and 652 from settings in non-deprived areas, exceeding the target of 600 in each. Nearly all participating settings had 10 or more eligible children, so response rate among keyworkers in these settings was around 83%, while for parents / carers it was around 62%.

Observations were conducted of 150 participating ELC settings using the Early Childhood Environment Rating Scale (ECERS-3). This is a widely recognised and highly regarded instrument designed for use in settings where most children are aged between three and five. It provides an observational measure of the quality of

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[37] Only one local authority with eligible settings (delivering 600 hours) was unable to participate. One other local authority did not participate because all their ELC settings were already providing 1140 hours of ELC.

[38] Note that inspectors were acting as observers and not in their regulatory capacity, and used a different tool in their observations than would be used for a formal quality grading.

[39] Further information on these instruments is provided in the relevant section of the report.

ELC settings for pre-school children across six domains: space and furnishings, personal care routines, language and literacy, learning activities, interaction and programme structure, as well as other observations around numbers of children and staff and access to outdoor space.

Observations were conducted by Care Inspectorate staff seconded to the study and involved a single visit lasting between 2 and 3 hours. It was emphasised to ELC setting managers and staff before and during these observations that they were not formal inspections of the kind routinely undertaken by the Care Inspectorate.

Weighting

Weights are commonly applied to survey data to make the achieved sample representative of the population it was drawn from, and to help produce unbiased survey estimates. Groups that are under-represented in the achieved sample are given larger weights than those that are over-represented, so that the weighted data matches the population on key characteristics. Estimates produced using the weighted data should then be closer to estimates that would have been gained from a representative sample.

There are two main motivations for weighting: to compensate for unequal sampling probabilities, and to reduce non-response bias. In this survey, nurseries in deprived areas were deliberately oversampled, in order to allow robust estimates for children attending such nurseries. When looking at national figures, it is therefore necessary to weight down those in deprived areas and weight up those in other areas. Non-response bias occurs where there is a differential level of non-response between different groups. In this survey there was a high level of response from certain nurseries and a lower level from others. As children attending the same nursery are likely to have had a more similar experience than those attending different nurseries, children attending nurseries with a high level of response were weighted down, and those with a low level of response were weighted up. Because of different response rates for keyworker questionnaires and parent questionnaires, separate weights were calculated for use with data from each questionnaire.

Calculation of weights happened in two stages. First setting weights were calculated and adjusted for setting non-response. Next at the individual level keyworker and parent weights were calculated to adjust for non-response within settings and then post-stratified to population totals of number of children by quintile of the Scottish Index of Multiple Deprivation.

Setting weights were calculated initially as the inverse of the selection probability for each setting. These were then scaled to have a mean of one for each responding setting. A final setting weight was then calculated to adjust for setting non-response by post-stratifying to strata totals (the strata being the different elements of the sample design – i.e. deprived and non-deprived, with separate strata for deprived in Glasgow and for East Dunbartonshire as these samples were drawn separately).

To produce the keyworker questionnaire weights, each child was initially assigned the setting weight. These were then adjusted for non-response to the keyworker questionnaire within settings. Extreme weights were trimmed and weights were then scaled to a mean of one. A final weight was created by post-stratifying to population totals (four- and five- year olds attending eligible ELC centres) by deprivation quintile of the setting. Parent questionnaire weights were produced in a similar manner.

Data analysis

Data analysis has been conducted using SPSS version 25. All analysis uses weighted data, except where discussing the characteristics of the cohort, and findings from the observations by Care Inspectorate staff. Tests for statistical significance have been conducted through the use of logistic regression, and all differences discussed within the text are statistically significant unless otherwise stated.

Appendix C – Supplementary tables

Table C1: Whether the full costs of the time child spends at nursery are met by the government, by respondent's (mother's) employment

	Respondent in employment	Respondent not in employment	All
	%	%	%
Yes	66	89	72
No	34	11	28
Unweighted base	*947*	*375*	*1,327*

Base: All respondents (parent survey, weighted)

Table C2: Use of additional childcare, by OECD equivalised income quintile

	Bottom income quintile	2nd	3rd	4th	Highest income quintile
	%	%	%	%	%
Private or workplace crèche, nursery, playgroup or pre-school	2	6	6	7	10
Local Authority crèche, nursery, playgroup or pre-school	2	6	2	4	2
Community or voluntary crèche, nursery, playgroup or pre-school	0	1	1	2	0
Childminder	2	6	2	4	2
Grandparents	16	32	33	50	39
Ex-spouse or partner	4	6	4	0	1
Another relative	4	7	8	3	4
Nanny or babysitter	-	1	0	2	3
Friend or neighbour	3	2	1	2	1
Other person	-	0	0	1	-
None	76	60	59	41	54
Unweighted base	*278*	*286*	*246*	*264*	*169*

Base: All respondents (parent survey, weighted)

Table C3: Use of childcare prior to age three, by OECD equivalised income quintiles

	Bottom income quintile	2nd	3rd	4th	Highest income quintile
	%	%	%	%	%
Private or workplace crèche, nursery, playgroup or pre-school	18	24	33	43	53
Local Authority crèche, nursery, playgroup or pre-school	19	17	8	8	6
Community or voluntary crèche, nursery, playgroup or pre-school	6	4	8	4	6
Childminder	13	15	13	18	25
Grandparents	39	58	64	67	48
Ex-spouse or partner	14	11	11	6	2
Another relative	23	18	21	12	10
Nanny or babysitter	1	2	1	3	1
Friend or neighbour	6	6	7	3	5
Other person	15	6	6	4	5
Unweighted base	*230*	*250*	*232*	*249*	*154*

Base: All respondents who reported using childcare before child was aged 3 (parent survey, weighted)

Table C4: % of parents who participated in various activities at child's nursery by highest qualification of respondent

	None	Standard Grade, National 3, 4 or 5, or equivalent	Higher Grade or equivalent	HNC, HND or equivalent	Degree or equivalent
	%	%	%	%	%
Visited your child's room	89	91	92	92	95
Attended a parents' evening or information meeting	69	87	80	87	89
Attended another type of nursery event	63	76	85	82	86
Helped out or offered to help out in the nursery including on a trip with a nursery event	37	45	41	40	45
Stayed and played with your child	52	57	56	61	59
Discussed your child's progress with her/his keyworker or another member of staff	96	97	96	98	98
Talked to someone about how to support your child's learning at home	50	54	51	59	57
Received help with your welfare rights or issues with benefits	7	7	2	2	1
Received help with transport to and from the nursery	7	1	1	1	0
Received help with food or clothing	6	6	0	2	2
Learned a new skill such as cooking or parenting skills	19	14	5	6	5
None of these	-	-	-	1	0
Unweighted base	*49*	*219*	*173*	*311*	*594*

Base: All respondents (parent survey, weighted)

Table C5: Average duration of a one-trip journey from home to the setting, by urban / rural classification

	Urban	Rural / Small town	All
	%	%	%
0 to 5 minutes	43	57	47
6 to 10 minutes	35	26	32
11 to 15 minutes	13	12	13
16 to 20 minutes	5	4	5
21 to 30 minutes	2	1	2
more than 30 minutes	2	0	1
Unweighted base	980	361	*1,350*

Base: All respondents (parent survey, weighted)

Table C6: ASQ communication domain by OECD equivalised income quintiles

	Bottom income quintile	2nd	3rd	4th	Highest income quintile
	%	%	%	%	%
Further assessment may be needed	9	7	6	2	4
Monitoring suggested	6	7	8	4	2
Child's development appears on schedule	84	86	86	94	94
Unweighted base	265	272	238	248	161

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C7: ASQ gross motor domain by highest qualification of respondent

	None	Standard Grade, National 3, 4 or 5, or equivalent	Higher Grade or equivalent	HNC, HND or equivalent	Degree or equivalent
	%	%	%	%	%
Further assessment may be needed	18	16	7	8	6
Monitoring suggested	8	12	11	10	10
Child's development appears on schedule	74	72	82	82	85
Unweighted base	*48*	*211*	*162*	*297*	*561*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C8: ASQ fine motor domain by OECD equivalised income quintiles

	Bottom income quintile	2nd	3rd	4th	Highest income quintile
	%	%	%	%	%
Further assessment may be needed	19	10	7	8	5
Monitoring suggested	11	12	5	4	3
Child's development appears on schedule	70	78	89	88	92
Unweighted base	*266*	*273*	*240*	*248*	*160*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C9: ASQ fine motor domain by highest qualification of respondent

	None	Standard Grade, National 3, 4 or 5, or equivalent	Higher Grade or equivalent	HNC, HND or equivalent	Degree or equivalent
	%	%	%	%	%
Further assessment may be needed	26	15	12	8	6
Monitoring suggested	17	14	10	7	5
Child's development appears on schedule	57	71	78	85	89
Unweighted base	*48*	*210*	*162*	*298*	*564*

Table C10: ASQ fine motor domain by household type

	Single parent	Couple parent
	%	%
Further assessment may be needed	14	8
Monitoring suggested	10	7
Child's development appears on schedule	76	85
Unweighted base	*258*	*1,045*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C11: ASQ problem solving domain by OECD equivalised income quintiles

	Bottom income quintile	2nd	3rd	4th	Highest income quintile
	%	%	%	%	%
Further assessment may be needed	7	0	2	-	0
Monitoring suggested	15	7	8	3	5
Child's development appears on schedule	78	93	90	97	94
Unweighted base	*266*	*272*	*238*	*247*	*161*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C12: ASQ problem solving domain by highest qualification of respondent

	None	Standard Grade, National 3, 4 or 5, or equivalent	Higher Grade or equivalent	HNC, HND or equivalent	Degree or equivalent
	%	%	%	%	%
Further assessment may be needed	9	5	2	2	1
Monitoring suggested	21	14	5	7	5
Child's development appears on schedule	70	81	93	91	94
Unweighted base	*48*	*211*	*161*	*298*	*562*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C13: ASQ problem solving domain by household type

	Single parent	Couple parent
	%	%
Further assessment may be needed	5	1
Monitoring suggested	13	6
Child's development appears on schedule	82	93
Unweighted base	*258*	*1,043*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C14: SDQ total difficulties score by highest qualification of respondent

	None	Standard Grade, National 3, 4 or 5, or equivalent	Higher Grade or equivalent	HNC, HND or equivalent	Degree or equivalent
	%	%	%	%	%
Close to average	72	80	87	84	89
Slightly raised	6	9	7	11	5
High	6	3	2	2	3
Very high	15	8	3	3	3
Unweighted base	*49*	*211*	*161*	*298*	*563*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C15: SDQ total difficulties score by household type

	Single parent	Couple parent
	%	%
Close to average	77	88
Slightly raised	11	7
High	5	2
Very high	7	3
Unweighted base	*259*	*1,044*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C16: ASQ fine motor domain by how often child sleeps through the night without waking

	Never sleeps right through the night	1-2 times a week	3-5 times a week	6 times a week	Every night
	%	%	%	%	%
Further assessment may be needed	21	11	9	5	9
Monitoring suggested	9	8	11	4	8
Child's development appears on schedule	70	80	80	91	83
Unweighted base	*90*	*104*	*169*	*169*	*774*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C17: ASQ fine motor domain by parental self-efficacy

	Coping well as a parent most or all of the time	Coping well as a parent less often
	%	%
Further assessment may be needed	8	13
Monitoring suggested	6	12
Child's development appears on schedule	86	74
Unweighted base	*967*	*314*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C18: ASQ fine motor domain by Confusion, Hubbub and Order scale

	Lowest tertile (4 to 6) (least chaotic)	Middle tertile (7 or 8)	Highest tertile (9 to 20) (most chaotic)
	%	%	%
Further assessment may be needed	7	10	11
Monitoring suggested	6	5	13
Child's development appears on schedule	87	85	76
Unweighted base	*389*	*461*	*434*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C19: SDQ total difficulties score by parental longstanding illness / health condition

	Parent has longstanding health condition	Parent has no longstanding condition
	%	%
Close to average	79	87
Slightly raised	12	6
High	2	3
Very high	7	3
Unweighted base	*254*	*1,047*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C20: SDQ total difficulties score by Home Learning Environment scale

	Bottom quartile (least frequent activities)	2nd	3rd	Highest quartile (most frequent activities)
	%	%	%	%
Close to average	80	87	88	87
Slightly raised	9	9	6	7
High	6	1	4	1
Very high	6	4	2	5
Unweighted base	*306*	*359*	*299*	*330*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C21: SDQ total difficulties score by whether child ever breastfed

	Ever breastfed	Never breastfed
	%	%
Close to average	89	82
Slightly raised	5	10
High	2	4
Very high	4	4
Unweighted base	*658*	*644*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C22: Parental self-reported general health by OECD equivalised income quintiles

	Bottom income quintile	2nd	3rd	4th	Highest income quintile
	%	%	%	%	%
Very good	25	33	45	59	52
Good	49	45	48	32	39
Fair	21	19	6	9	9
Bad	3	3	0	-	0
Very bad	1	-	-	-	-
Unweighted base	*278*	*286*	*247*	*265*	*169*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Table C23: Parental self-reported general health by area deprivation (SIMD)

	Most deprived quintile	2nd	3rd	4th	Least deprived quintile
	%	%	%	%	%
Very good	28	37	49	48	54
Good	51	38	38	45	38
Fair	17	23	13	6	7
Bad	3	1	0	1	0
Very bad	1	1	-	0	-
Unweighted base	*416*	*250*	*224*	*229*	*247*

Base: All children (with responses to both parent questionnaire and keyworker observations, weighted)

Appendix D – Regression analysis

Tables D1 and D2 show the results of logistic regression analysis of whether a child has delayed development on at least two domains of the Ages and Stages Questionnaire and of raised / high score on the Strengths and Difficulties Questionnaire total difficulties scale.

Logistic regression analysis is a method of summarising the relationship between a binary 'outcome' variable and one or more 'predictor' variables. It allows us to estimate the odds of a child having a score of '1' on the outcome variable (as opposed to '0') from knowledge of their scores on the predictor variables. In the model shown in Table D1 the score of '1' on the dependent variable refers to exhibiting delayed development on two or more of the ASQ domains, while a '0' refers to exhibiting no delayed development, or delayed development on just one of the domains.

Logistic regression allows us to consider multiple relationships at the same time and to identify those relationships between a predictor variable and the outcome variable which remain statistically significant even when we take into account other predictor variables. For those variables that do remain significant we can say that they show an independent association with the outcome variable while controlling all other factors in the model.

Tables D1 and D2 show how the odds for each category of each predictor variable compare with the odds for the reference category. An odds ratio of greater than 1 indicates that, holding all other factors constant, there is an increased likelihood of a child in that category being in the category '1' for the outcome variable compared with a child in the base category. For example, in Table D1, the odds ratio of 4.09 for the category 'Male' means that boys are more likely than girls (the base category) to exhibit delayed development on two or more of the ASQ domains (and the odds of a boy exhibiting delayed development are 4.10 times those for a girl, holding all other factors constant). Conversely, an odds ratio of below 1 means they have lower odds of exhibiting delayed development than respondents in the reference category.

Because data are taken from a sample, we recognise that the odds ratios are only estimates, so we also include confidence intervals around each estimate. If the survey were to be repeated, we would expect the true value to fall within these odds ratios 95 times out of 100.

Two measures of statistical significance are provided. The first is for the comparison between a particular category and the base category, while the second is for the variable as a whole. Where the independent variable has just two categories, these are the same. A significance level of 0.05 or less indicates that there is less than a 5% chance we would have found these differences between the categories just by chance if in fact no such difference exists, hence we can say that we are 95% sure there is a relationship between the predictor and outcome variables. A level of <0.001 indicates that there is a less than 0.1% chance, so we

can say that we are 99.9% sure that the relationship exists. For the purposes of Tables 9 and 10, we described a level of significance of less than 0.01 as “highly significant”, of between 0.01 and 0.05 as “moderately significant, and of between 0.05 and 0.10 as “marginally significant”.

The Nagelkerke R-square value provided at the bottom of each model is a rough indication of the proportion of variation in the outcome variable explained by the predictor variables in the model. In each of the models this is between 0.2 and 0.26, which is fairly typical for this type of analysis. This means that there is a lot of variation in the data which is not explained by the variables (and nor would we expect it to be).

Both models have been tested for stability through the systematic removal of variables to check for changes in odds ratios and significance of other variables, and checks on the covariation of independent variables, and both were found to be stable. The variable for frequency of sleeping through the night was not included in the models because of its strong correlation with other variables in the model, which would have affected the overall stability.

Table D1: Logistic regression model of delayed development on at least two domains of the Ages and Stages Questionnaire

	Odds Ratio	Confidence interval	Sig. (compared with base)	Sig. (overall)
Sex of child				<0.001
Male	4.10	(2.64 - 6.37)	<0.001	
Female				
Long term health condition (reported by either parent or keyworker)				<0.001
Yes	4.78	(2.99 - 7.64)	<0.001	
No (+missing)				
Parental long-term condition				0.352
Yes	0.76	(0.42 - 1.36)	0.352	
No (+ missing)				
Single / couple parent household				0.533
Single parent household	1.17	(0.72 - 1.91)	0.533	
Couple parent household (+ missing)				
Number of siblings < 16 in household				0.036
None / One (+ missing)	0.60	(0.37 - 0.97)	0.036	
Two or more				
Age of parent / respondent				0.639
20 to 29	1.34	(0.64 - 2.81)	0.439	
30 to 34	1.43	(0.75 - 2.74)	0.272	
35 to 39 (+ missing)	1.53	(0.79 - 2.94)	0.204	
40+				
Language spoken at home				0.034
Not English / dual language	2.08	(1.06 - 4.08)	0.034	
English (+ missing)				
Area deprivation (SIMD) of home address				0.295
40% most deprived	1.27	(0.81 - 2.01)	0.295	
Less deprived (+ missing)				
Equivalised household incrome				0.758
Lowest 40%	1.08	(0.66 - 1.75)	0.758	
Middle / higher incomes (+ missing)				
Whether respondent in work / training				0.166
No	1.45	(0.86 - 2.44)	0.166	
Yes (+ missing)				
Highest qualification of respondent				0.009
None / lower school (Standard Grade, etc.)	2.16	(1.32 - 3.53)	0.002	
Upper school / post-school/pre-HE (Highers, HNC, etc.) (+ missing)	1.23	(0.75 - 2.03)	0.412	
Degree / HE				

… Continued

Table D1 Continued

	Odds Ratio	Confidence interval	Sig. (compared with base)	Sig. (overall)
Parental mental wellbeing (SWEMWBS)				0.155
Low (1 s.d below the mean)	1.50	(0.86 - 2.64)	0.155	
Average / high (+ missing)				
Feelings about amount of support from friends / family outside of household				0.256
Don't get enough / don't get any	1.38	(0.79 - 2.43)	0.256	
Get enough / don't need (+ missing)				
Parental self-efficacy				0.285
Coping well as a parent less often	0.74	(0.43 - 1.28)	0.285	
Coping well as a parent most or all of the time (+ missing)				
How many hours sleep per 24 hours				0.229
< 10 hours	1.70	(0.92 - 3.16)	0.090	
10 hours	1.05	(0.65 - 1.70)	0.839	
11+ hours (+ missing)				
Ever breastfed				0.192
Yes (+ missing)	0.75	(0.48 - 1.16)	0.192	
No				
Home learning environment scale				0.881
Lowest quartile (least frequent activities)	0.97	(0.62 - 1.51)	0.881	
Higher quartiles (+ missing)				
Confusion, hubbub and order scale (CHAOS)				0.207
Highest tertile (most chaotic)	1.67	(0.95 - 2.94)	0.076	
Middle tertile (+ missing)	1.42	(0.81 - 2.51)	0.223	
Lowest tertile (least chaotic)				
Total hours of childcare (formal and informal)				0.247
> 30	0.78	(0.43 - 1.40)	0.394	
> 18, up to 30	0.60	(0.33 - 1.10)	0.099	
Up to 18				
Intercept				<0.001
	0.03	(0.01 - 0.08)	<0.001	

n = 1301
Nagelkerke R square = 0.257

Table D2: Logistic regression model of raised / high score on the Strengths and Difficulties Questionnaire total difficulties scale

	Odds Ratio	Confidence interval	Sig. (compared with base)	Sig. (overall)
Sex of child				<0.001
Male	2.37	(1.47 - 3.82)	<0.001	
Female				
Long term health condition (reported by either parent or keyworker)				<0.001
Yes	3.59	(2.27 - 5.67)	<0.001	
No (+missing)				
Parental long-term condition				0.900
Yes	1.03	(0.63 - 1.70)	0.900	
No (+ missing)				
Single / couple parent household				0.520
Single parent household	1.22	(0.67 - 2.22)	0.520	
Couple parent household (+ missing)				
Number of siblings < 16 in household				0.340
None / One (+ missing)	1.30	(0.76 - 2.20)	0.340	
Two or more				
Age of parent / respondent				0.323
20 to 29	0.91	(0.46 - 1.78)	0.776	
30 to 34	1.16	(0.72 - 1.88)	0.536	
35 to 39 (+ missing)	0.74	(0.40 - 1.37)	0.332	
40+				
Language spoken at home				0.646
Not English / dual language	0.84	(0.40 - 1.78)	0.646	
English (+ missing)				
Area deprivation (SIMD) of home address				0.558
40% most deprived	0.86	(0.52 - 1.42)	0.558	
Less deprived (+ missing)				
Equivalised household incrome				0.119
Lowest 40%	1.53	(0.90 - 2.60)	0.119	
Middle / higher incomes (+ missing)				
Whether respondent in work / training				0.187
No	1.39	(0.85 - 2.25)	0.187	
Yes (+ missing)				
Highest qualification of respondent				0.974
None / lower school (Standard Grade, etc.)	1.05	(0.59 - 1.85)	0.877	
Upper school / post-school/pre-HE (Highers, HNC, etc.) (+ missing)	1.06	(0.64 - 1.76)	0.821	
Degree / HE				

… Continued

Table D2 Continued

	Odds Ratio	Confidence interval	Sig. (compared with base)	Sig. (overall)
Parental mental wellbeing (SWEMWBS)				0.001
Low (1 s.d below the mean)	2.30	(1.38 - 3.83)	0.001	
Average / high (+ missing)				
Feelings about amount of support from friends / family outside of household				0.451
Don't get enough / don't get any	0.81	(0.46 - 1.41)	0.451	
Get enough / don't need (+ missing)				
Parental self-efficacy				0.181
Coping well as a parent less often	1.38	(0.86 - 2.22)	0.181	
Coping well as a parent most or all of the time (+ missing)				
How many hours sleep per 24 hours				0.341
< 10 hours	1.49	(0.83 - 2.68)	0.178	
10 hours	0.92	(0.57 - 1.50)	0.742	
11+ hours (+ missing)				
Ever breastfed				0.271
Yes (+ missing)	0.77	(0.49 - 1.23)	0.271	
No				
Home learning environment scale				0.112
Lowest quartile (least frequent activities)	1.41	(0.92 - 2.17)	0.112	
Higher quartiles (+ missing)				
Confusion, hubbub and order scale (CHAOS)				0.263
Highest tertile (most chaotic)	1.53	(0.89 - 2.63)	0.122	
Middle tertile (+ missing)	1.51	(0.86 - 2.64)	0.152	
Lowest tertile (least chaotic)				
Total hours of childcare (formal and informal)				0.348
> 30	0.97	(0.57 - 1.63)	0.892	
> 18, up to 30	0.65	(0.36 - 1.18)	0.152	
Up to 18				
Intercept				<0.001
	0.03	(0.01 - 0.08)	<0.001	

n = 1313
Nagelkerke R square = 0.213

How to access background or source data

The data collected for this social research publication:

☐ are available in more detail through Scottish Neighbourhood Statistics

☐ are available via an alternative route

☒ may be made available on request, subject to consideration of legal and ethical factors. Please contact socialresearch@gov.scot for further information.

☐ cannot be made available by Scottish Government for further analysis as Scottish Government is not the data controller.

social research

The views expressed in this report are those of the researcher and do not necessarily represent those of the Scottish Government or Scottish Ministers.

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