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Scottish Study of Early Learning and Childcare: Three-year-olds (Phase 3) Report (Updated 2021)



CHILDREN, EDUCATION AND SKILLS



Scottish Study of Early Learning and Childcare: Three-year-olds (Phase 3) 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 pp67-68 and in Table 8 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 pp76-79, tables 10 and 11 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.

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Executive Summary

Background

This report outlines findings from the third 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 statutory duty to deliver 1140 has, however, been paused due to the wide-ranging impacts of the COVID-19 pandemic. A timetable for the reinstatement of the duty will be agreed by the Scottish Government and local authorities once the full implications of the pandemic are understood. The timetable for completion of the follow-up phases 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, this 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 receiving the existing entitlement and comparing them to those who receive the increased entitlement. The aims of Phase 3, which focused on children aged three, were to gather:

- Robust data on child outcomes for children who had taken part at Phase 1 (the "Eligible 2s") after one year of receiving 600 hours of funded ELC provision.
- Robust baseline data on child outcomes for a separate nationally-representative sample of three-year-olds who were receiving 600 hours of funded ELC provision (the "Comparator 3s").
- Robust baseline data on parent outcomes linked to the above two samples of three-year-olds.

The eligibility criteria for statutory funded ELC for two-year-olds are aimed at those who experience the greatest disadvantage from their circumstances. This means that families of the "Eligible 2s" followed up in Phase 3 were more likely to be experiencing varying levels of socio-economic difficulties. The criteria include children who are looked after, are subject to kinship care or guardianship order, as well as families who are in receipt of certain qualifying benefits (out of work or income-related benefits with an annual income below a designated threshold).

Methods

Two separate samples were recruited, one following up children who had taken part at Phase 1 after one year of 600 hours of funded ELC (the “Eligible 2s”), and a separate, nationally representative sample of children of the same age receiving up to 600 hours of funded ELC provision at Phase 3, and their parents. Children in both samples were aged between 3 years 0 months and 3 years 6 months when the fieldwork took place. Participants in the Eligible 2s sample were contacted either via the ELC setting they attended at Phase 1 or, if they had changed settings, via their new setting. Participants in the Comparator 3s sample were recruited from a subsample of settings which took part, or indicated willingness to take part, at Phase 2. Settings at Phase 2 had been selected randomly across 30 local authorities, ensuring a random sample for Phase 3 also. Within each setting, up to 10 children were randomly selected and invited to take part.

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). The same questionnaires were used for both the Eligible 2s and the Comparator 3s, and were very similar to those used in previous phases of the study, with adjustments made for the ages of the children. Fieldwork was conducted between October and December 2019. A total of 269 questionnaires were received from parents/carers and 376 from keyworkers in the Eligible 2s sample, while 565 questionnaires were received from parents/carers and 811 from keyworkers in the Comparator 3s sample.

Key findings

Characteristics of the cohort

- At age 3, as may be expected, children in the Eligible 2s group lived in significantly more disadvantaged circumstances than the average Scottish three-year-old.
- More than half (57%) of those responding to the parent questionnaire among the Eligible 2s were single parents, compared with 16% of the Comparator 3s.
- One in six (17%) of the parents of the Eligible 2s had a university degree or equivalent and 46% had no or lower school qualifications (such as Standard Grades, National 3s, 4s or 5s) only, compared with nearly half (47%) of the parents of the Comparator 3s with a degree and 17% with no or lower school qualifications.
- Half (47%) of the Eligible 2s resided in the most deprived 20% of areas according to the Scottish Index of Multiple Deprivation (SIMD), while a further 27% resided in the second most deprived 20% of areas. In contrast, the Comparator 3s were equally spread across the quintiles.
- Forty-two percent of respondents in the Eligible 2s group had household incomes amongst the bottom 10% of incomes for all households, compared with 13% in the Comparator 3s. Three quarters (76%) of the Eligible 2s lived in

households where the income was amongst the lowest 30% for all households, compared with 29% for the Comparator 3s.

- Parent/carers of the Eligible 2s tended to be younger than those of the Comparator 3s, with 42% under the age of 30, including 13% under the age of 25, compared with 18% of the Comparator 3s under the age of 30, including 4% under the age of 25.
- Nearly all respondents were white (96% of the Eligible 2s and 95% of the Comparator 3s), and most spoke only English at home (90% of the Eligible 2s and 89% of the Comparator 3s).

Change in outcomes for Eligible 2s and their parents between Phase 1 and Phase 3

Analysis in this section was based on the same group of children at both Phase 1 and Phase 3 – i.e. those for whom a keyworker questionnaire was completed at both phases or a parent questionnaire was completed at both phases. Figures may therefore differ slightly from those for the Eligible 2s previously published in the Phase 1 report.

Child health and home learning

- At both Phase 1 and Phase 3, most children (in the Eligible 2s sample) were in good or very good health (91% at Phase 1, 93% at Phase 3).
- Twelve percent of children at Phase 1 and 14% at Phase 3 had a long-term illness or health condition. Of those with a condition at Phase 1, a third (33%) were not reported as having the condition at Phase 3, while small numbers were reported as having a condition at Phase 3 but not at Phase 1.
- Around three quarters of parents at each phase said they had no concerns about how the child talked (72% at Phase 1 and 75% at Phase 3), while nine out of ten said they had no concerns about what the child understood (89% at each phase). Where strong concerns existed, they tended to persist, but there was movement in both directions.
- Levels of participation in learning activities at home were fairly similar at Phase 1 and Phase 3. More than half the children at both phases looked at books or read stories with someone in their household every day of the week (54% at each phase). A quarter of children did painting or drawing every day at both Phase 1 and Phase 3 (25% at Phase 1 and 26% at Phase 3). Two thirds of children sang songs or recited nursery rhymes (67% at Phase 1 and 70% at Phase 3). Nearly half played at recognising letters, numbers or shapes (40% at Phase 1 and 46% at Phase 3).
- Where children were frequently involved with home learning activities at age two, this tended to continue at age three: 70% of those who looked at books or read stories with someone in their household every day at age two did the same at age three.

Child development – Ages and Stages Questionnaire

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 four of the five ASQ domains there was an increase in the proportion of children (in the Eligible 2s cohort) reported as on schedule after one year of funded ELC provision. This increase was largest for the personal-social domain, from 41% on schedule at age two to 71% one year later.
- While the overall pattern saw an increase in the proportion on schedule for the Eligible 2s after a year of funded ELC, there was movement in both directions. Some children who appeared on schedule at Phase 1 were no longer recorded as such one year later, and other children who were not recorded as on schedule when they were age two appeared to be on schedule at age three.
- Regression analysis was used to identify the factors from Phase 1 most strongly associated with child outcomes at Phase 3. This difference in the timings helps us to see the direction of any association, although it does not imply causality. There was a strong association between being on schedule at age two and being on schedule at age three. Other significant factors, after controlling for ASQ score at Phase 1, included being a girl (which was associated with being on schedule at both phases), having a parent/carer with upper school qualifications, such as Highers, and frequent home learning activities (both of which were much more strongly associated with ASQ scores at Phase 3 than at Phase 1).

Child development – Strengths and Difficulties Questionnaire

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. For the prosocial domain higher scores indicate more positive behaviour, so categories of 'slightly lowered', 'low' and 'very low' are used.

- On four of the five SDQ domains there was an increase in the proportion of children assessed as close to average after one year of funded ELC provision. This was largest for the SDQ prosocial domain, increasing from 45% at age two, to 73% at age three, although some caution must be applied given the

natural development of children in prosocial behaviour around this age. The total difficulties domain saw an increase in the proportion with close to average scores from 44% at Phase 1 to 58% at Phase 3.

- Two thirds (69%) of those with a close to average SDQ total difficulties score at age two continued to have a close to average score one year later, while one third (31%) had a raised or high score at the age of three. Half (49%) of those with a raised or high score at age two had improved to a close to average score by age three. Similar regression analysis was used to identify the factors from Phase 1 most strongly associated with having a close to average score on the SDQ total difficulties scale. Key drivers were: a close to average score at age two, being female, and doing frequent home learning activities at age two.
- There was a slight widening of the gap between boys and girls, and between those children undertaking learning activities at home most frequently and other children, in the proportion of children with a close to average SDQ total difficulties score from age two to age three.

Parent outcomes

- Over the course of a year there was a small increase in the proportion of parents and carers of Eligible 2s who reported working part time, from 25% at Phase 1 to 33% at Phase 3, and the proportion in either part-time or full-time work increased from 35% to 40%. There was a corresponding drop in the proportion who reported looking after the home or family, from 72% to 63%.
- Of those who were in work or training at Phase 1, most (88%) remained in work at Phase 3. Similarly, most (83%) of those who were not in work at Phase 1 were not in work at Phase 3, while one in six (17%) of those who were not in work at Phase 1 had since found employment.
- Around three quarters of parents of the Eligible 2s agreed at Phase 3 with the statements that they had been able to think about what they may do in the future (74%) and that they had more time to themselves (73%), in both cases up from 67% at Phase 1. The majority at Phase 3 were also feeling less stressed (60% at both Phase 1 and Phase 3) and feeling happier (55% at Phase 1 and 53% at Phase 3). Half (48%) agreed they had been able to work or look for work because their child was in nursery, up from 41% at Phase 1, and a third (35%) agreed they had been able to study or improve work-related skills, up from 29% at Phase 1.
- At Phase 3, 58% of the Eligible 2s sample said they were coping well as parents most or all of the time, showing little change from Phase 1 (59%).

Comparisons of outcomes between Eligible 2s at Phase 3 and Comparator 3s

Analysis in this section is based on Phase 3 data only, so figures for the Eligible 2s may differ slightly from those reported earlier.

Child health and home learning

- Most children were described as being in good or very good health by their parent or carer, although the proportion was slightly higher for the Comparator 3s than the Eligible 2s (96% and 91% respectively).
- The proportion of children with a longstanding illness or health condition was higher for the Eligible 2s than for the Comparator 3s: 14% of the Eligible 2s had a longstanding condition, compared with 7% of the Comparator 3s. This difference was largely due to children who had a referred (local authority funded) place at age two.
- A quarter (25%) of the parents of the Eligible 2s mentioned concerns about how their child talks, including 37% of parents of children receiving referred places at age two, compared with one in six (17%) of the parents of the Comparator 3s.
- The Comparator 3s were slightly more likely than the Eligible 2s to look at books every day (62% compared with 54%). However, there was little difference in the proportions who did painting or drawing every day (25% of the Eligible 2s and 23% of the Comparator 3s) and recited nursery rhymes or sing songs every day (66% of the Eligible 2s and 61% of the Comparator 3s).
- Girls within the Comparator 3s were more likely than boys to look at books (68% compared with 56%). In both groups, girls were twice as likely as boys to paint or draw every day (33% of girls and 16% of boys in the Eligible 2s, and 32% of girls and 15% of boys in the Comparator 3s). Girls were also more likely to recite nursery rhymes or sing songs every day in both groups.

Child Development - ASQ

- For four of the five ASQ domains a higher proportion of those in the Comparator 3s group were on schedule at Phase 3 than those in the Eligible 2s. Once the programme to increase the funded hours of ELC has been fully rolled out, it will be of particular interest to assess whether these gaps at age three have decreased.
- The largest difference in the proportion on schedule was for the communication domain: two thirds (67%) of the Comparator 3s were on schedule at Phase 3, compared with half (50%) of the Eligible 2s. Smaller differences in the proportion on schedule were observed for the fine motor domain (64% of the Comparator 3s and 54% of the Eligible 2s), the problem solving domain (63% of the Comparator 3s and 53% of the Eligible 2s) and the personal-social domain (77% of the Comparator 3s and 71% of the Eligible 2s). The gross motor skills domain was the one with the smallest proportion of children on schedule, and no difference between the two groups (47% of the Eligible 2s and 46% of the Comparator 3s).
- Differences by gender were slightly more evident for the Eligible 2s than for the Comparator 3s, although they were still present for both groups on all but the gross motor domain.
- For the Comparator 3s, the proportion on schedule for the ASQ problem solving domain tended to increase with decreasing levels of deprivation, from

54% in the most deprived 20% of areas to 73% in the least deprived 40%. On the other domains, differences were not significant.

- Regression analysis was used to identify the factors most strongly associated with child outcomes at Phase 3. For the Comparator 3s, the strongest predictor was having a parent with a degree or upper-school or post-school qualifications (e.g. Highers), with being female, speaking English at home as the only or main language, and having a parent with no long-term health condition also marginally statistically significant.

Child Development - SDQ

- For the emotional symptoms and prosocial behaviour domains, the differences between the Eligible 2s and the Comparator 3s were very small. Around three quarters of children scored close to average on the emotional symptoms domain (77% of the Eligible 2s and 79% of the Comparator 3s) and on the prosocial behaviour domain (72% of the Eligible 2s and 75% of the Comparator 3s).
- Differences in the total difficulties score (58% of the Eligible 2s close to average, compared with 66% of the Comparator 3s) were driven by differences in the conduct problems domain (75% of the Eligible 2s and 82% of the Comparator 3s close to average), the hyperactivity domain (53% of the Eligible 2s and 61% of the Comparator 3s) and the peer problems domain (55% of the Eligible 2s and 63% of the Comparator 3s).
- With the exception of the emotional symptoms domain, the proportion of girls scoring close to average was higher than the proportion of boys for both the Eligible 2s and the Comparator 3s.
- Children's scores on each of the ASQ domains were strongly correlated with their SDQ total difficulties score for both groups.
- Regression analysis was again used to look at the drivers of close to average scores on the SDQ total difficulties scale. For the Comparator 3s, five key drivers of a close to average score were identified: being a girl, living in a non-deprived area, being white, living in an ordered / non-chaotic home, and receiving more than 18 hours a week of childcare, both formal and informal (i.e. more than just the statutory entitlement of ELC).
- Among the Comparator 3s, 72% of those in the least deprived two quintiles were assessed as close to average on the SDQ total difficulties scale, compared with 60-62% in the most deprived two quintiles. Around two thirds (66-69%) of the Comparator 3s living in the most well-ordered homes achieved a close to average score compared with 58% living in more disorganised homes. While 71% of the Comparator 3s receiving more than 18 hours a week childcare were assessed as close to average on the total difficulties scale, compared with 58% of those receiving 18 hours or fewer each week.

Parent outcomes

- The majority of parents in both groups had been employed at one point, with those in the Comparator 3s (97%) more likely to have been employed than those in the Eligible 2s (80%).

- Parents in the Comparator 3s group were much more likely to have been working in the past 7 days than those in the Eligible 2s. Two thirds (69%) of parents of the Comparator 3s had been working, including 28% full-time and 41% part-time, compared with 38% of the Eligible 2s (9% full-time and 29% part-time).
- Parents who were in employment were asked if they would work more if they could afford good quality childcare. Those in the Eligible 2s group were more likely to agree (53%) than those in the Comparator 3s (34%). Among the Comparator 3s, agreement was more likely for those on lower incomes.
- The majority of parents in both groups reported being in good or very good health, although the proportion doing so among the Comparator 3s (83%) was higher than that among the Eligible 2s (63%). Among the Comparator 3s, those in two parent households, those on higher incomes and those with a higher level of education were all more likely to rate their health as good or very good.
- Parents in the Eligible 2s group were more likely to have a longstanding condition (41%, including 37% with a limiting longstanding condition) than those in the Comparator 3s (20%, including 14% with a limiting condition). For both groups, those in single parent households were more likely to have a longstanding illness than those in couple parent households. The proportion with a longstanding condition among the Comparator 3s declined with increasing levels of income and education.
- Parents in the Comparator 3s group were more likely to say they were coping well as a parent most or all of the time (73% compared with 57% of the Eligible 2s).
- Parents in the Eligible 2s group were more likely than those in the Comparator 3s group to say they had been feeling happier as a result of having their child in nursery (51% compared with 42% of the Comparator 3s), that they had been feeling less stressed (58% compared with 42%), that they had more time to themselves (72% compared with 63%), that they were able to think about what they may do in the future (71% compared with 57%) and that they had been able to care for other family members (57% and 35%).
- For the Comparator 3s, those in the bottom two income quintiles were more likely to agree they were feeling less stressed, feeling happier, had more time to themselves, had been able to think about what they may do in the future and had been able to care for other family members compared with those in the top three quintiles. Those with lower levels of education, in single parent households and living in more deprived areas also appeared to benefit more in terms of feeling happier, less stressed, having more time to themselves and being more able to think about the future.

Use of ELC

- Most parents reported that the full costs of the time their child spent at the setting was met by the government, although this proportion was higher for the Eligible 2s (92% compared with 78% of the Comparator 3s).

- For the Comparator 3s, clear relationships were evident between whether the child's time at the setting was funded by the government and a range of demographic factors. Nearly all (94%) respondents in the Comparator 3s group who were not in work or training had full funding through the statutory entitlement, compared with 73% of those who were in work or training. Those on lower incomes were more likely to have all the time spent by the child at the setting funded through their statutory entitlement.
- Around half of the families in the Comparator 3s group (49%) got help with childcare on a regular basis from another provider compared with a third (32%) of the families of the Eligible 2s.
- Grandparents were the most commonly used form of additional childcare, with 36% of parents of the Comparator 3s and 17% of parents of the Eligible 2s using them. In both groups, those in work or training were much more likely to use grandparents for childcare than those who were not.
- Those in the Comparator 3s group accessed an average of 7.6 hours of unfunded additional hours per week, compared with 3.7 hours for the Eligible 2s. Much of this difference can be explained by employment status. In both groups those in work or training accessed, in general, more unfunded hours than those who were not.
- The majority of respondents among both the Eligible 2s (62%) and the Comparator 3s (70%) felt that they got enough support with childcare from family or friends living outside of the household.
- The large majority of parents had discussed their child's progress with her/his keyworker since they started nursery (94% for the Eligible 2s, 88% for the Comparator 3s). Parents of the Eligible 2s were more likely to have spoken to someone about how to support their child's learning at home (57% compared with 30% of the Comparator 3s). Parents of the Eligible 2s were also more likely to have engaged with some of the wider support some settings are able to provide.
- More than 9 in 10 parents in both groups said that attending nursery had been enjoyable for their child and that it had given their child opportunities to interact and socialise with other children. A slightly higher proportion of the Comparator 3s than the Eligible 2s mentioned that it had enabled them to work, study or train (45% and 37% respectively), while the reverse was true in terms of enabling them to care for others (28% of the Eligible 2s and 19% of the Comparator 3s).
- A majority of parents in both groups said there were no disadvantages to their child being in nursery – 67% of the Comparator 3s and 70% of the Eligible 2s. Where disadvantages were cited the more popular responses were that the child was not in nursery for long enough to enable time for work (15% of Comparator 3s and 14% of Eligible 2s) and that nursery hours were not flexible (13% of Comparator 3s and 9% of Eligible 2s).

Introduction

Background

This report outlines findings from the surveys conducted as part of the third 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 year¹. This planned 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 for 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 benefits².

The expansion of funded ELC in Scotland was due to take effect from August 2020. Implementation of the statutory duty to deliver 1140 has, however, been paused due to the wide-ranging impacts of the COVID-19 pandemic. A timetable for the reinstatement of the duty will be agreed by the Scottish Government and local authorities once the full implications of the pandemic are understood.

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.

¹ Scottish Government (2016) A Blueprint for 2020: The Expansion of Early Learning and Childcare in Scotland – Quality Action Plan, Edinburgh: Scottish Government.

² 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/>

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 Health Scotland in 2017³. 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 circumstances⁴.

To evaluate the impact of the expansion programme, the study has been designed to collect data across several phases over around five years from 2018. **Phases 1, 2 and 3** have collected baseline data on the outcomes of children accessing **600 hours** of funded ELC and their parents:

Phase 1 – November 2018

- Data collected on eligible two-year-olds as they begin ELC

Phase 2 – May/June 2019

³ 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>.

⁴ 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 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
- 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. Dates proposed for follow-up data collection prior to the COVID-19 pandemic are shown below:

Phase 4 – November 2022

- Data collected on eligible two-year-olds as they begin ELC

Phase 5 – May/June 2023

- Data collected on four- and five-year-olds as they leave ELC to begin Primary 1

Phase 6 – November 2023

- 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

However, the timetable for completion of the follow-up phases of the SSELC will be affected by the delay in the statutory duty to deliver 1140 due to the impact of the COVID-19 pandemic, and an updated evaluation timetable will be confirmed in due course.

Findings from Phase 1 were published in August 2019⁵ and from Phase 2 in August 2020⁶. The focus of the third phase being reported here (Phase 3) was to follow-up children who had taken part at Phase 1 after one year in ELC (the “Eligible 2s”), as well as to collect data on a separate, nationally-representative group of children of the same age (the “Comparator 3s”). Data were gathered on children aged between three years and three years six months who were receiving 600 hours of funded ELC provision.

To be eligible for government-funded provision of ELC when aged two years, children must be in households in receipt of certain state benefits, or be looked after or in care.⁷ Local authorities can use their discretion to fund additional places for two-year-olds in situations where the child has additional needs, or the family requires extra support. These criteria mean that most of the children included in the “Eligible 2s” cohort were from lower income households. Those children included in

⁵ <https://www.gov.scot/publications/scottish-study-early-learning-childcare-phase-1-report/>

⁶ <https://www.gov.scot/publications/scottish-study-early-learning-childcare-etc-leavers-phase-2-report/>

⁷ <https://www.mygov.scot/childcare-costs-help/funded-early-learning-and-childcare/>

this cohort who were not living in lower income households were receiving funded ELC either because they were looked after or in care, or through local authorities using their discretion to offer funded or subsidised ELC over and above the legal entitlement to provide support for a wider range of families.

The aims of Phase 3 were:

- To gather robust data on child outcomes for children who had taken part at Phase 1 (the “Eligible 2s”) after one year of receiving 600 hours of funded ELC provision.
- To gather robust baseline data on child outcomes for a separate nationally-representative sample of three-year-olds who were receiving 600 hours of funded ELC provision (the “Comparator 3s”).
- To gather robust baseline data on parent outcomes linked to the above two samples of three-year-olds.

The results from Phase 3 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. This includes discussion of how things have changed after one year of ELC for the Eligible 2s and their families, using data from Phase 1 as well as Phase 3, and a comparison of outcomes for the two separate samples at Phase 3. The report is not intended to provide a detailed consideration of the relationship between use of funded ELC and child or parent outcomes.

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) and Strengths and Difficulties (SDQ) Questionnaires⁸. 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.

Finally, the report 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

Follow up of Eligible 2s

At Phase 1, data were collected on 586 children, including 574 for whom keyworker observations were completed, and 428 for whom a parent/carer questionnaire was completed. In August 2019, settings were contacted to remind them of the undertaking to recontact parents/carers one year after the initial data collection exercise. Settings were asked which of the Phase 1 children were still in attendance, and, if any had moved to another setting, the name and contact details for the new setting were requested.

Of the 586 children who took part at Phase 1, 416 were believed to be attending the same setting⁹ or another setting which took part at Phase 1 (139 separate settings); 133 were traced to new settings (97 settings) and 37 could not be traced (mostly recorded as not attending ELC in Scotland).

Sampling of Comparator 3s

The sample of Comparator 3s was drawn from settings which took part at Phase 2 or indicated that they would be happy to take part at Phase 3 even if they were not able to take part at Phase 2. This was for three main reasons:

- As most of these settings had previously participated, or attended an information session at Phase 2, efficiencies were made by not repeating information sessions for these settings.
- Similarly, most of the settings involved at Phase 2 had also been observed by the Care Inspectorate and assessed using the Early

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

⁹ Where settings did not respond to the letter or telephone calls, as was the case for around 10% of settings, children were assumed to still be in attendance at the same setting.

Childhood Environment Rating Scale (ECERS-3), which was designed for evaluating ELC provision for children from age two and a half to five. Hence further efficiencies were made by not repeating this exercise.

- The achieved sample at Phase 2 was nationally representative of four- and five- year-olds attending ELC settings¹⁰. All of the Phase 2 settings also catered for children from the age of three, and the distribution of children across settings was similar for both age groups. Hence with small adjustments to the weighting of data, the Phase 3 sample can be said to be nationally representative of three-year-olds attending ELC settings.

At Phase 2, settings in deprived areas were deliberately oversampled. This was not an aim of the Phase 3 sample, so proportionally fewer settings from deprived areas were selected at Phase 3, with the aim of achieving a nationally representative sample.

The sample consisted of children aged between 3 years and 3 years 6 months who had started attending the setting since August 2019 and who were receiving up to 600 hours of government-funded or local-authority-funded ELC provision, and the parents of those children. The ages of these children matched the ages of the Eligible 2s cohort. Up to 10 children were selected within each sampled setting. More details of the sampling process are provided in Appendix B.

Data collection

Data were gathered on children in the cohort via two methods: a survey of parents/carers and a survey of the children's ELC keyworkers (primarily to measure child development). Data about the settings were also available, including observations of ELC settings attended by sampled children at Phase 1 and Phase 2 carried out by Care Inspectorate inspectors¹¹.

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) and Strengths and Difficulties (SDQ)¹² questionnaires but also collected information about the number of hours the child attended the ELC setting in the previous week.

Fieldwork was conducted between October and December 2019. For the Eligible 2s, questionnaires were sent to 236 settings for a total of 549 of the 586 children who took part at Phase 1.

¹⁰ Once weighting had been applied to take account of the deliberate oversampling of deprived areas.

¹¹ 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.

¹² Further information on these instruments is provided in the relevant section of the report.

- At least one questionnaire was returned for 391 children, including 376 keyworker questionnaires and 269 parent questionnaires; 254 children had both questionnaires completed
- 372 children had keyworker questionnaires for both Phases – 65% of the 574 keyworker questionnaires returned at Phase 1
- 228 children had parent questionnaires for both phases – 53% of the 428 parent questionnaires returned at Phase 1
- In total, 212 children had both questionnaires completed at both phases – 51% of the 416 with both questionnaires completed at Phase 1

For the Comparator 3s, questionnaire packs were sent to 151 ELC settings and at least one questionnaire was returned from 112 of these. Response rates for this group of children are not as easy to estimate because information about the number of eligible children in every setting was not available.

- At least one questionnaire was returned for 851 children, including 811 keyworker questionnaires and 565 parent questionnaires; 515 children had both questionnaires completed
- Based on the limited available evidence¹³, response rates among keyworkers in the 112 responding settings was around 90%, while for parents/carers it was around 60%.

Nearly all the parent/carer questionnaires (92%) were completed by the child's mother or a female carer within the household, so where the terms "parent" or "parent/carer" are used throughout this report, they refer mostly to the mother or main female carer within the household.

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.

¹³ 70 settings provided information about the number of eligible children, at an average of 8.4 potential responses per setting.

Reporting conventions and statistical significance

Percentages are reported to the nearest whole number. Figures for the Eligible 2s are representative of only those who participated, and hence statistical significance is not meaningful. However, significance tests have been applied to aid with the assessment of the magnitude and importance of any differences, while recognising the limitations of their applicability to non-random samples. For the Comparator 3s, as the sample was random, statistical significance tests can be applied in the normal way. The figures shown for this group 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 for this group 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. Figures based on fewer than 20 responses have been replaced by an asterisk (*).

Child, parent and household characteristics

Characteristics of the cohorts

This report focuses on findings for two distinct cohorts of children and their families. The 'Comparator 3s', are a random sample of children aged between 3 years and 3 years 6 months, nationally representative of children of that age receiving 600 hours of funded ELC. The 'Eligible 2s' are a group of children, largely from lower income households, followed up one year after their participation in Phase 1 of the study. The figures used in this section are unweighted for both cohorts, so should be taken as only being representative of the sample rather than of the population as a whole.

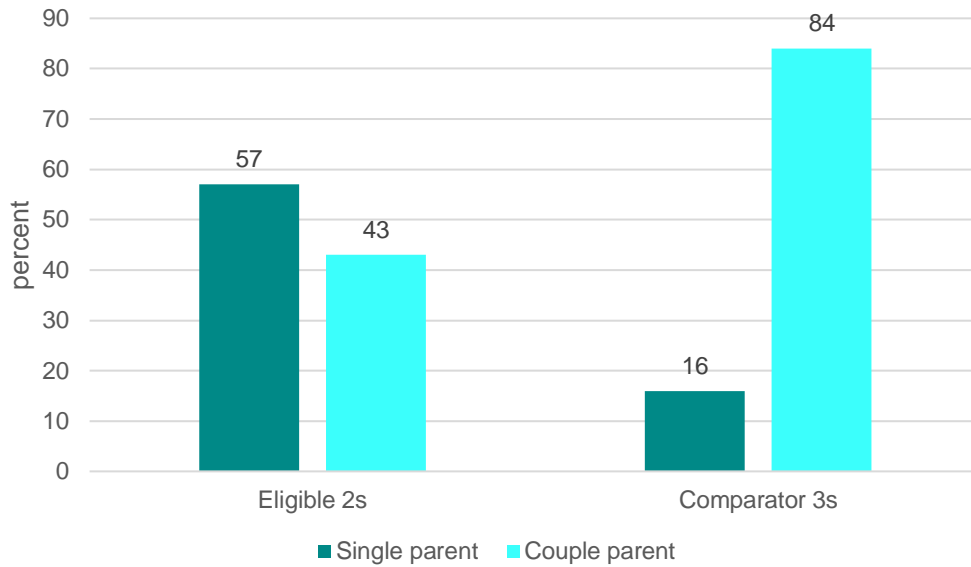
For around 80% of the Eligible 2s group their 'eligibility' derives from the fact that they were eligible for 600 hours of statutory funded ELC at the age of two because they were the subject of a kinship care order or a guardianship order, or because their parents were in receipt of one or more qualifying benefits. The other 20% were receiving ELC through local councils using their discretion to offer funded or subsidised ELC over and above the legal entitlement, to provide support for a wider range of families. Discretionary funding from the local authority, commonly through referral from a social worker, health visitor or other professional, is often for children with additional needs, as well as for families that need extra support. Because of the small numbers, we do not distinguish between these two groups in most of the analysis, except where there is a very obvious difference, for example when looking at long-term health conditions.

There were noticeable differences in the compositions of the two samples. As can be seen in Figure 1, 57% of the households of the Eligible 2s were single parent families¹⁴, whereas for the Comparator 3s this figure was 16%. Half of the Eligible 2s (49%) lived with only one person aged 16 or above¹⁵ in the household, 41% lived with two and 10% lived with three or more. For the Comparator 3s, only 13% lived with one adult in the household, 79% lived with two and 7% lived with three or more. A third (30%) of the Eligible 2s were the only child in the household, compared with a quarter (25%) of the Comparator 3s; a further third (34%) of the households of the Eligible 2s had 3 or more children in them, compared with one fifth (20%) of the households of the Comparator 3s.

¹⁴ Including single foster parents and single grandparent households.

¹⁵ Including parents, grandparents, older siblings and other adults.

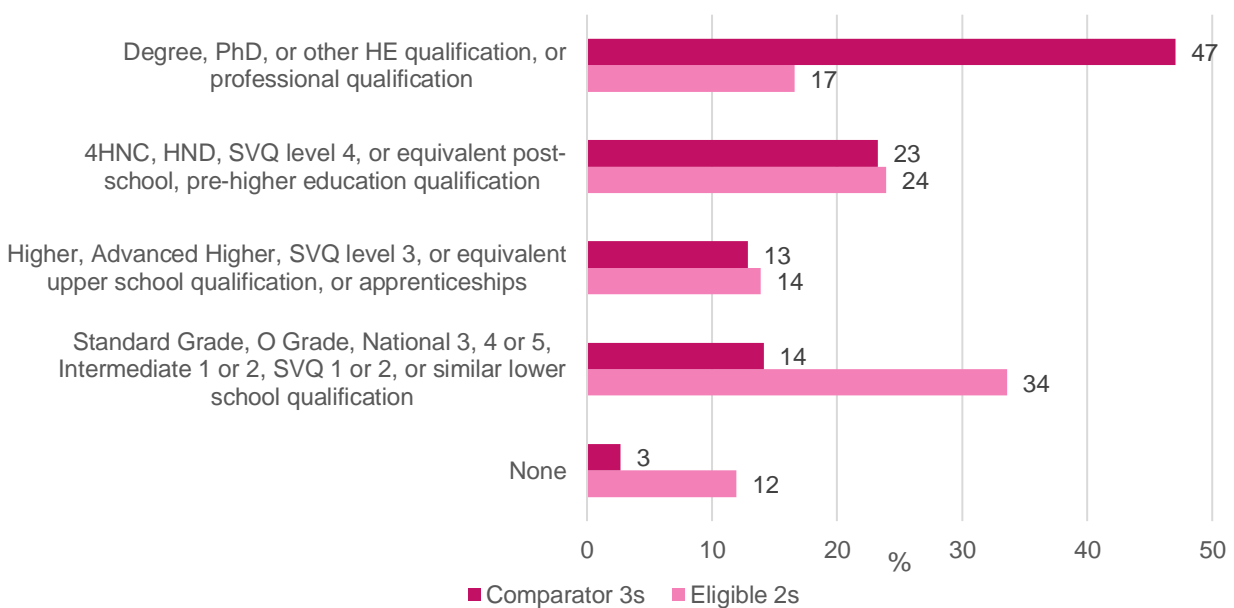
Figure 1: Household composition



Base: All respondents (parent survey, unweighted)

The level of education among parents/carers who responded to the parent questionnaire was higher for the Comparator 3s than for the Eligible 2s. A full breakdown of educational attainment is given in Figure 2. As can be seen, nearly half (47%) of the parents of the Comparator 3s had a university degree or equivalent, compared with one in six (17%) of the Eligible 2s. At the other end of the spectrum, 12% of parents of the Eligible 2s had no formal educational qualifications, and a further 34% lower school qualifications only (such as Standard Grade, or National 3, 4 or 5), compared with 3% of the parents of the Comparator 3s having no formal qualifications and 14% lower school only.

Figure 2: Highest level of education of respondent



Base: All respondents (parent survey, unweighted)

The Eligible 2s were more likely to be living in deprived areas than the Comparator 3s. Half (47%) of the Eligible 2s resided in the most deprived 20% of areas according to the Scottish Index of Multiple Deprivation (SIMD). A further 27% resided in the second, 13% in the third, 9% in the 4th and only 4% in the least deprived areas. In contrast the distribution for the Comparator 3s was much more in line with the general population, with roughly one fifth in each quintile (between 18% and 21%).

The Eligible 2s were also more likely to be living in lower income households than the Comparator 3s, reflecting the eligibility criteria for access to statutory funded provision of ELC for two-year-olds. If we divide household income into equivalised income deciles¹⁶, we see that 42% of respondents in the Eligible 2s group were in the bottom decile for income¹⁷, compared with 13% in the Comparator 3s. Three quarters (76%) of the Eligible 2s were in the bottom three deciles for household income¹⁸, compared with 29% for the Comparator 3s.

Respondents in the Eligible 2s group tended to be younger than those in the Comparator 3s. The median age of the respondents in the Eligible 2s group was 31, with 42% under the age of 30, including 13% under the age of 25. The median age for respondents in the Comparator 3s group was 34, with 18% under the age of 30, including 4% under the age of 25.

The Eligible 2s and Comparator 3s were much more similar when it came to the ethnic background of respondents. Almost the same proportion of respondents were non-white: 4% of the Eligible 2s and 5% of the Comparator 3s. The majority in both samples were white Scottish, 86% of the Eligible 2s were in this category and 83% of the Comparator 3s, with the remainder being of white origin from other parts of the UK or the rest of the world.

Most respondents in both samples spoke only English at home: 90% of the Eligible 2s and 89% of the Comparator 3s. Only 2% in each group spoke only other languages at home.

¹⁶ 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. The range of incomes is then divided into ten groups – deciles - according to the spread of average national household income levels, with each decile expected to capture 10% of household incomes. 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.

¹⁷ That is, less than £10,214 p.a. for a two adult household, £8,886 for a household of one adult and one child under the age of 14, £14,300 for two adults and two children, and more for larger households.

¹⁸ That is, less than £19,425 p.a. for a two adult household, £16,900 for a household of one adult and one child under the age of 14, £27,195 for two adults and two children, and more for larger households.

Change in outcomes for Eligible 2s and their parents between Phase 1 and Phase 3

All analysis in this section is based on the same group of children at both phases – those for whom valid responses were provided at both Phase 1 and Phase 3. This means that sample sizes are low for this analysis (see Methods section) and caution should be taken when interpreting the findings. However, any changes can be understood as definite changes for this particular cohort of children, rather than due to a change in the composition of the sample between phases. All children included in the analysis were eligible for funded ELC provision at age two, and were restricted to certain areas of Scotland at Phase 1. As such, they are not representative of children attending ELC more widely. Data in this section have not been weighted.

Figures for Phase 1 are likely to differ from those previously published in the Phase 1 report because the sample has been restricted in this report to those with data at both phases. For the same reason, figures for Phase 3 are likely to differ from those included in the section comparing outcomes for the Eligible 2s at Phase 3 and the Comparator 3s.

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 Programme¹⁹. These particular instruments were also selected for inclusion in the Child Health Programme following an extensive review by academics and practitioners²⁰.

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

¹⁹ Scottish Government (2012) *The Scottish Child Health Programme: Guidance on the 27-30 month child health review*, Edinburgh: Scottish Government.

²⁰ 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.

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 ASQ is intended to identify developmental delays, and hence is specific to the age of the child. Three different versions of the questionnaire were used at Phase 1, depending on the child's exact age, while a further two different versions were used at Phase 3. While the ASQ has been carefully calibrated with a broad range of children so that we might expect the proportion demonstrating delayed development to be similar for each age group, we should be cautious in stating that any apparent changes over time identified by this study are real rather than artefacts of the questionnaire or due to keyworkers being more familiar with the children than they were at Phase 1.

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.

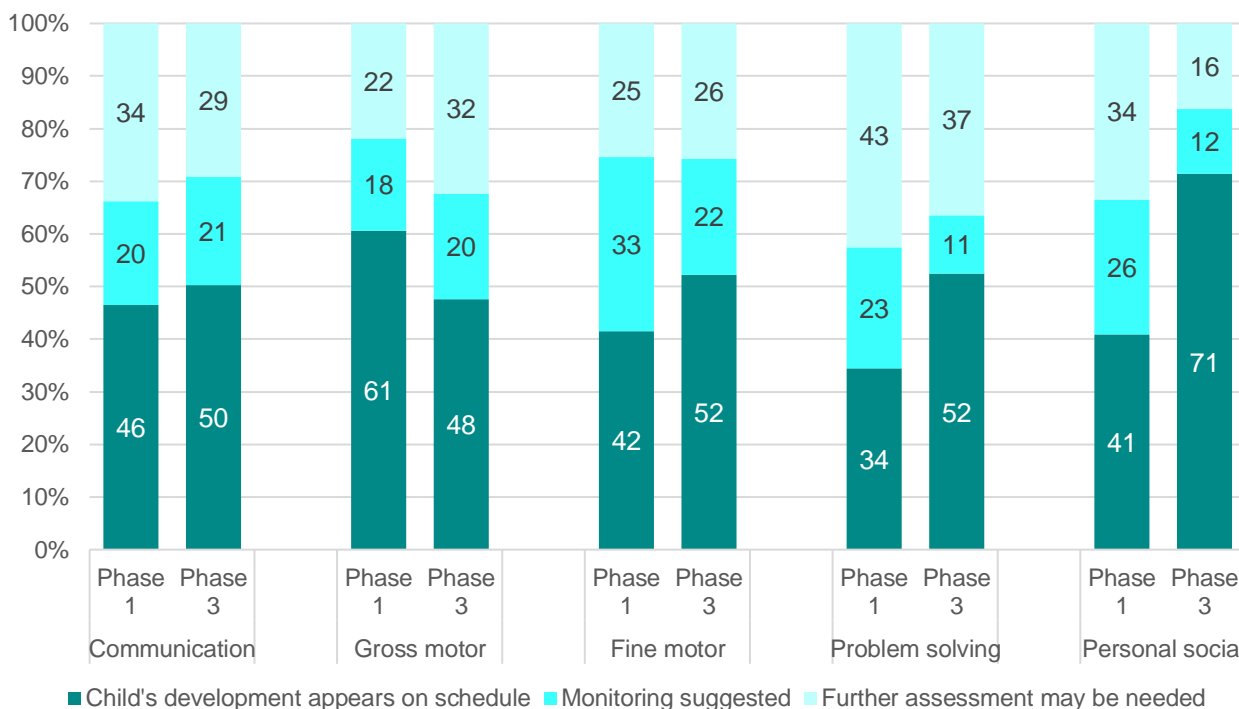
A slightly modified version of the original SDQ has been validated for children between the ages of two and four. This was used at both Phase 1 and Phase 3. As children are developing rapidly at this age, we may expect scores on the scales to differ for two-year-olds and three-year-olds. Thus we cannot claim that changes in the scores over time identified in the data are due to the child receiving ELC rather than the natural development of the children over the course of a year. However, once the surveys have been repeated with children receiving the increased hours of ELC, we may be able to attribute a difference in the magnitude of any change to the increase in hours, if all other factors remain constant.

Ages and Stages Questionnaire

Figure 3 shows the proportion of children whose development was recorded as being on schedule, where monitoring was suggested and where further assessment may be needed on each of the ASQ domains at both Phase 1 (age two) and Phase 3 (age three). Taking into account the caution that should be applied in interpreting these changes noted above, on four of the five domains there was an increase in the proportion of children reported as on schedule after one year of funded ELC provision. This increase is particularly noticeable for the personal-social domain, from 41% on schedule at age two to 71% one year later. On the other four

domains, around half the children were on schedule at age three. This represented an increase from 34% to 52% on the problem solving domain, an increase from 42% to 52% on the fine motor domain, and a smaller increase, from 46% to 50% on the communication domain. The gross motor domain actually saw a fall in the proportion of children on schedule, from 61% to 48%²¹.

Figure 3: ASQ score by domain, Phase 1 and Phase 3



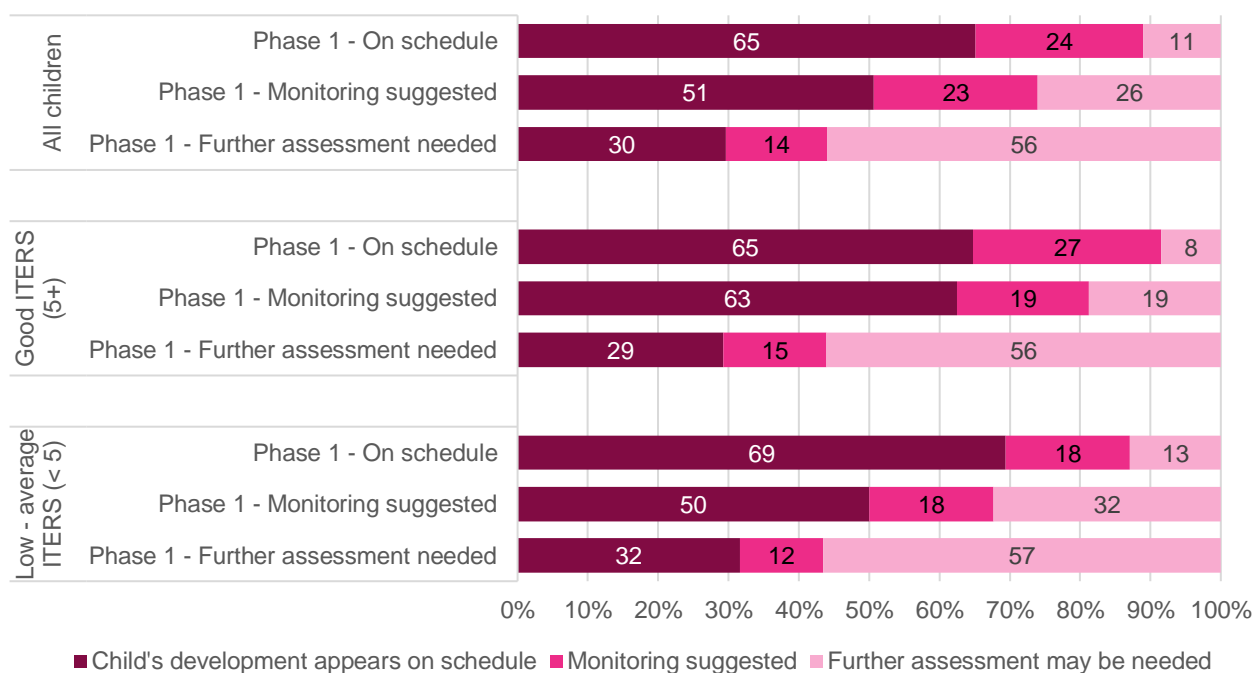
Base: All children (with keyworker observations at both Phase 1 and Phase 3, unweighted)

While the overall pattern saw an increase in the proportion on schedule for the Eligible 2s after a year of funded ELC, there was movement in both directions. Some children who appeared on schedule at Phase 1 were no longer recorded as such one year later, and other children who were not recorded as on schedule when they were age two appeared to be on schedule at age three. Figure 4 demonstrates this for the communication domain, while similar information for the other domains can be found in Appendix C, Tables C1 to C4. Looking at Figure 4, two thirds (65%) of those whose development was assessed as on schedule at Phase 1 were still on schedule at Phase 3. Just over half (56%) of those for whom it was suggested that further assessment may be needed at Phase 1 were recorded as the same at Phase 3, while a third of this group (30%) were recorded with development on schedule at Phase 3.

²¹ At Phase 1 there was an issue with one of the three questionnaires used which meant that two questions on the gross motor domain were missed for some of the children. This may have slightly inflated the proportion reported as on schedule at Phase 1.

Figure 4 also demonstrates differences according to the rating of the ELC setting at Phase 1, using the Infant / Toddler Environment Rating Scale (ITERS-3)²². It shows that there was no clear association between the rating of the setting and change in ASQ communication score. Similar proportions of those who were on schedule at Phase 1 remained on schedule at Phase 3, irrespective of the rating (65% of those in settings rated 5 or above and 69% of those in settings rated less than 5) and similar proportions of those for whom further assessment was needed at Phase 1 improved to be on schedule by Phase 3 (29% of those in settings rated 5 or above and 32% of those in settings rated less than 5). It is worth noting, however (see Table C5 in Appendix C), that the proportion of children for whom further assessment is needed was higher in settings with a lower rating (33% of those in lower rated settings and 24% of those in higher rated settings), and that this proportion has fallen slightly for all settings since Phase 1 (down from 39% of those in lower rated settings and 28% of those in higher rated settings).

Figure 4: ASQ communication domain Phase 3, by ASQ communication domain Phase 1 and rating of ELC setting (ITERS-3)



Base: All children (with keyworker observations at both Phase 1 and Phase 3, unweighted)

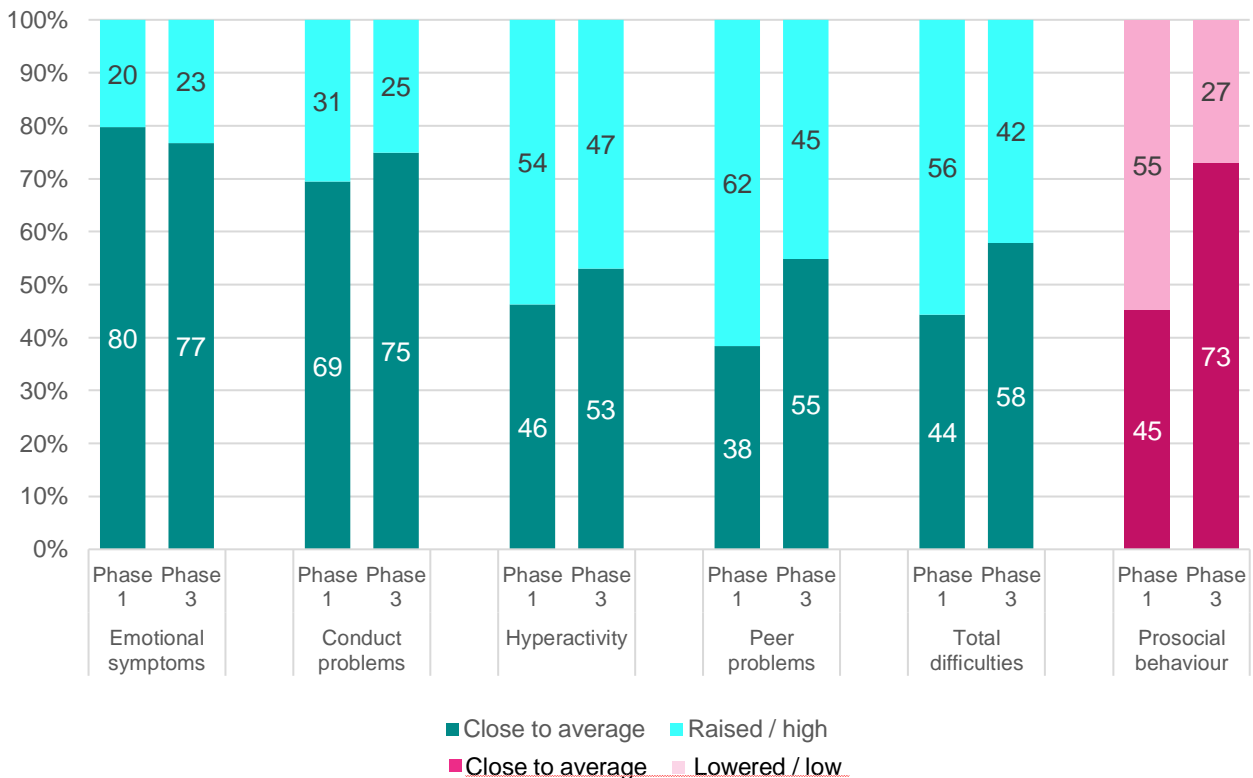
²² Inspectors from the Care Inspectorate, acting on behalf of this study rather than in an official capacity, were asked to rate each setting they observed on a broad range of quality measures. Each item was scored on a scale of 1 to 7 (inadequate to excellent). Items were combined to provide scores for six different domains: space and furnishings; personal care routines; language and books; activities; interaction and program structure. Scores for these domains were averaged to provide an overall score. For the purpose of this report, settings were divided into those with an average score of 5 and above and those with a score of below 5. More information about ITERS-3 is provided in the Phase 1 report: <https://www.gov.scot/publications/scottish-study-early-learning-childcare-phase-1-report/>.

Strengths and Difficulties Questionnaire

Figure 5 shows a large increase in the proportion of children with close to average scores on the SDQ prosocial domain, from 45% at age two, to 73% at age three. This is perhaps not surprising, given the natural development of children’s prosocial behaviour during this period of their life. The limitations of the SDQ in measuring change over time for specific groups, including the Eligible 2s, were outlined earlier. Even though it is not possible to assess how much of the observed increase may be due to measurable features, such as the quality of nursery provision, and how much is due to the expected development at this stage in life, this increase at least sets out a baseline change for the Eligible 2s against which changes identified by future data collections, following the increase to 1140 funded hours, may be assessed.

Changes on the other domains were much smaller. The proportion of children with a close to average score was highest at age three on the emotional symptoms domain, despite a small decrease from 80% at Phase 1 to 77% at Phase 3. The other domains all saw increases in the proportion with close to average scores following a year of funded ELC provision, from 69% to 75% on the conduct problems domain, from 46% to 53% on the hyperactivity domain and from 38% to 55% on the peer problems domain. The total difficulties domain, which summarises the scores on these four domains, saw an increase in the proportion with close to average scores from 44% at Phase 1 to 58% at Phase 3.

Figure 5: SDQ score by domain, Phase 1 and Phase 3

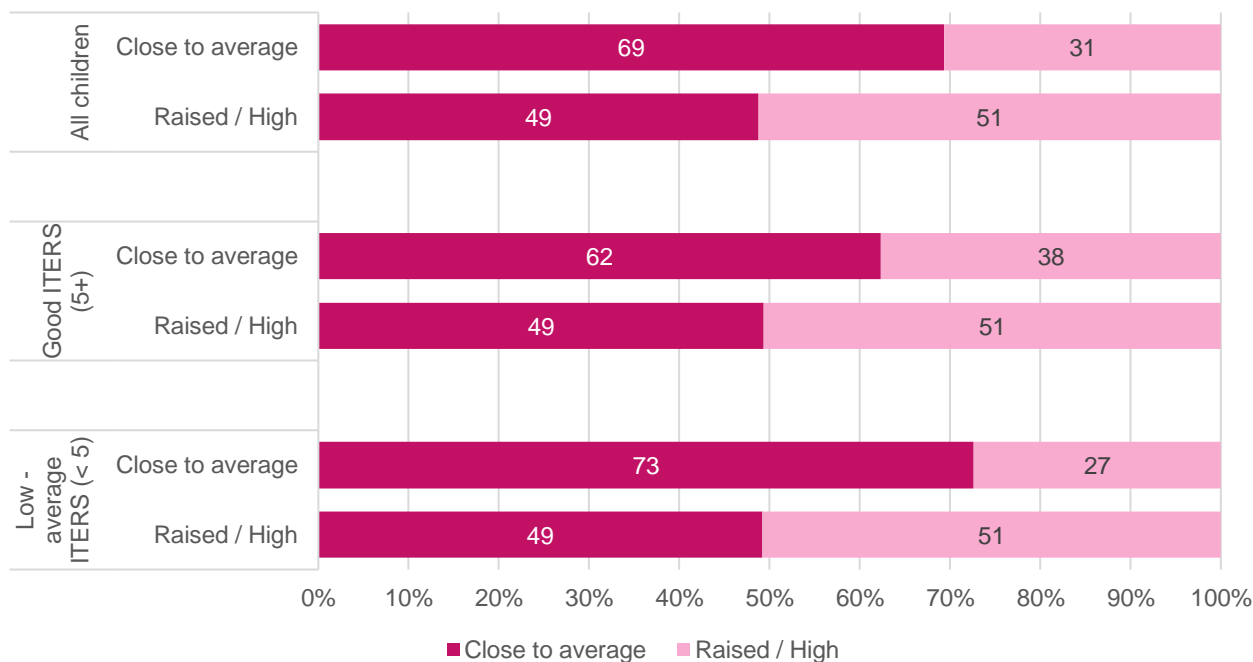


Base: All children (with keyworker observations at both Phase 1 and Phase 3, unweighted)

As was seen with the ASQ scores, there was movement in both directions. Figure 6 shows that two thirds (69%) of those with a close to average SDQ total difficulties score at age two continued to have a close to average score one year later, while one third (31%) had a raised or high score at the age of three. Half (49%) of those with a raised or high score at age two had improved to a close to average score by age three.

Figure 6 also shows the association between the summary measure of scores on the ITERS scale, from the setting observations at Phase 1, and the change in SDQ total difficulties scores. For those with a raised or high score at Phase 1, no difference was observed, with half (49%) of those in settings rated both higher and lower showing an improvement to achieve a close to average score at Phase 3. For those with a close to average score at Phase 1, there is the slightly surprising finding that a higher proportion of those in a setting rated below 5 retained the close to average score at Phase 3 (73% compared with 62% of those in a setting rated 5 or above). Due to small sample sizes, we should not read too much into this result, but it would be worth further analysis of the data to explore whether individual elements of ITERS show associations with an improvement in SDQ (and ASQ) and whether there are differences in the types of household accessing settings with different qualities. Overall, SDQ scores were similar at Phase 3 irrespective of the ITERS score of the setting, although a higher proportion of children in settings with a score of 5 or above were assessed as close to average at Phase 1 than of children in settings with a lower score (Table C6 in Appendix C).

Figure 6: SDQ total difficulties score Phase 3, by SDQ total difficulties score Phase 1 and rating of ELC setting (ITERS-3)

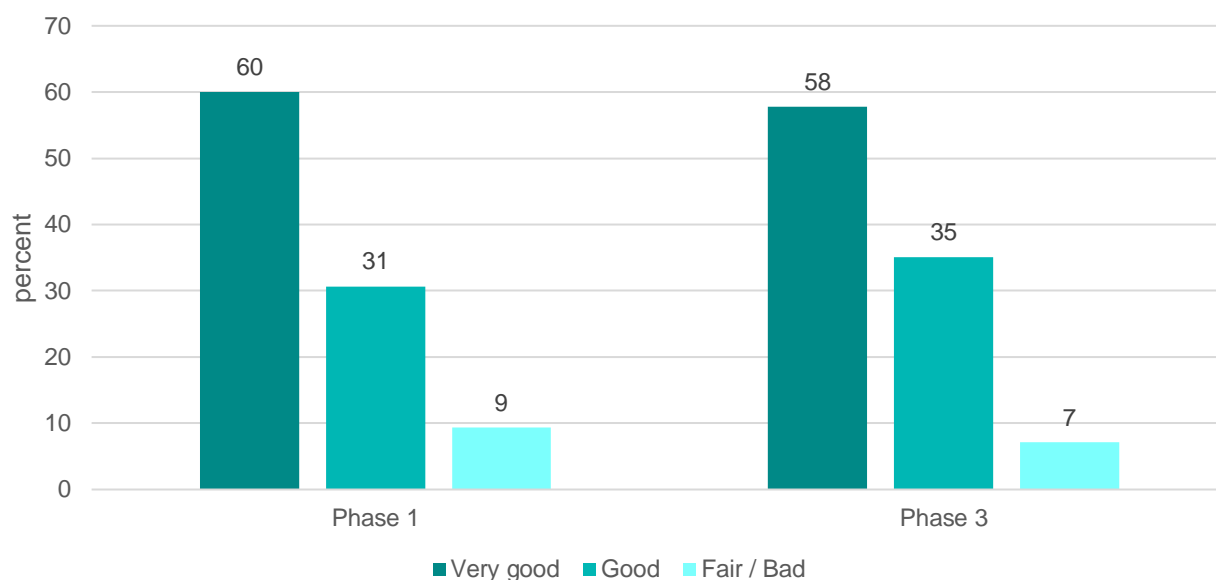


Base: All children (with keyworker observations at both Phase 1 and Phase 3, unweighted)

General health

At both Phase 1 and Phase 3, most children were in good or very good health (91% at Phase 1, 93% at Phase 3, see Figure 7). Around half (48%) of those whose health was only fair at Phase 1 showed an improvement to good or very good health, while only small numbers showed any deterioration from good or very good to fair or bad (see Table C7 in Appendix C).

Figure 7: Child's general health, Phase 1 and Phase 3



Base: All children (with parent questionnaire at both Phase 1 and Phase 3, unweighted)

There was also little change over the course of a year in the proportion of children with a long-term illness or health condition: 12% at Phase 1 and 14% at Phase 3. Of those with a condition at Phase 1, a third (33%) were not reported as having the condition at Phase 3, while small numbers were reported as having a condition at Phase 3 but not at Phase 1 (Table C8 in Appendix C).

The proportions of parents noting concerns about how their child talked or what they understood also remained fairly constant following a year of ELC provision. Around three quarters of parents at each phase said they had no concerns about how the child talked (72% at Phase 1 and 75% at Phase 3), while nine out of ten said they had no concerns about what the child understood (89% at each phase). Where strong concerns existed at phase 1, they tended to persist, but there was movement in both directions, with some parents reporting new concerns and others no longer reporting concerns that had previously existed (Table C9 in Appendix C).

Home environment

Levels of participation in learning activities at home were fairly similar at Phase 1 and Phase 3. More than half the children at both phases looked at books or read stories with someone in their household every day of the week (54% at each phase). A quarter of children did painting or drawing every day at both Phase 1 and

Phase 3 (25% at Phase 1 and 26% at Phase 3). Two thirds of children sang songs or recited nursery rhymes (67% at Phase 1 and 70% at Phase 3). Nearly half played at recognising letters, numbers or shapes (40% at Phase 1 and 46% at Phase 3).

Where children were frequently involved with home learning activities at age two, this tended to continue at age three. For example, 70% of those who looked at books or read stories with someone in their household every day at age two did the same at age three, while 42% of those who looked at books no more than two days a week at age two also looked at books this infrequently at age three (Tables C10 to C13 in Appendix C). As we shall see in the next section, home learning activities are associated with child development outcomes, and getting into the habit of frequent learning activities early in a child’s life may make it easier for them to persist as they age.

Table 1: Frequency of home learning activities, Phase 1 and Phase 3

	0-2 days	3-4 days	5-6 days	7 days	<i>Unweighted base</i>
	%	%	%	%	
Looked at books or read stories					
Phase 1	11	21	14	54	218
Phase 3	14	16	16	54	218
Painting or drawing					
Phase 1	27	29	19	25	216
Phase 3	22	33	19	26	216
Recited nursery rhymes or sung songs					
Phase 1	15	11	7	67	215
Phase 3	7	8	14	70	215
Recognising letters, words, numbers or shapes					
Phase 1	28	17	15	40	215
Phase 3	16	19	20	46	215

Base: All respondents (with parent questionnaire at both Phase 1 and Phase 3, unweighted)

Assessments of development and home/nursery environment

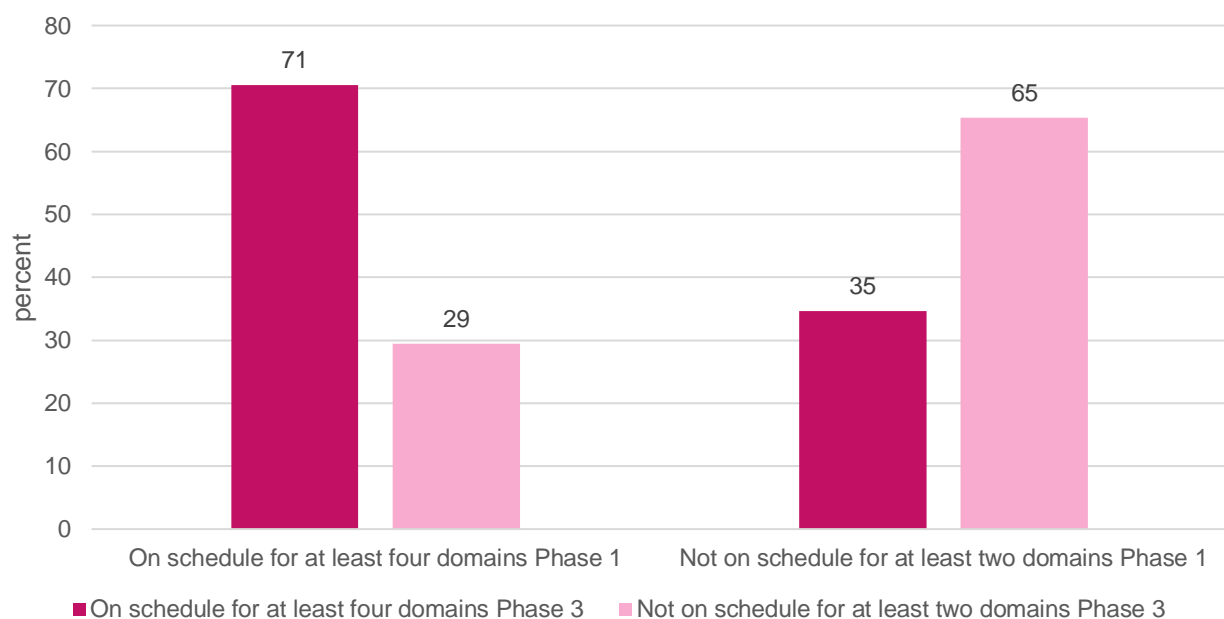
In order to identify the factors most strongly associated with child outcomes, logistic regression modelling was conducted. This technique allows us to identify which factors are independently associated with the outcome variable when other factors

in the model are taken into account. More details of this technique, including the tables and how to read them, are included in Appendix D.

Table D1 in Appendix D shows the results of a model to identify factors associated with being on schedule for at least four domains of the ASQ. It contains six variables from Phase 1 which are used to predict the outcome of whether a child was mostly on schedule at Phase 3. This difference in the timings helps us to see the direction of any association, although it in no way implies any causality. Several other variables were tested but not included in the model because they showed no statistically significant association once other variables were taken into account. These are listed in the appendix.

The model demonstrates a strong association between being on schedule for at least four of the domains at Phase 1 (age two) and being on schedule for at least four of the domains at Phase 3 (age three), indicated by the relatively large odds ratio and small statistical significance value, even when other factors are taken into account. This is illustrated in Figure 8 (although this simpler two variable analysis does not take into account the other factors in the model), which is similar to Figure 4 (showing the association for the communication domain only). The strong association suggests that children whose development is largely on schedule at age two are much more likely to continue to be on schedule after a year of ELC provision than those who were not on schedule at age two. Indeed, Figure 8 shows that 71% of those who were largely on schedule at age two were also largely on schedule at age three, compared with 35% of those who were not on schedule for at least four domains. The reverse is also true: 65% of those whose development was not on schedule on at least four domains at age two were not on schedule a year later, compared with 29% of those who were largely on schedule.

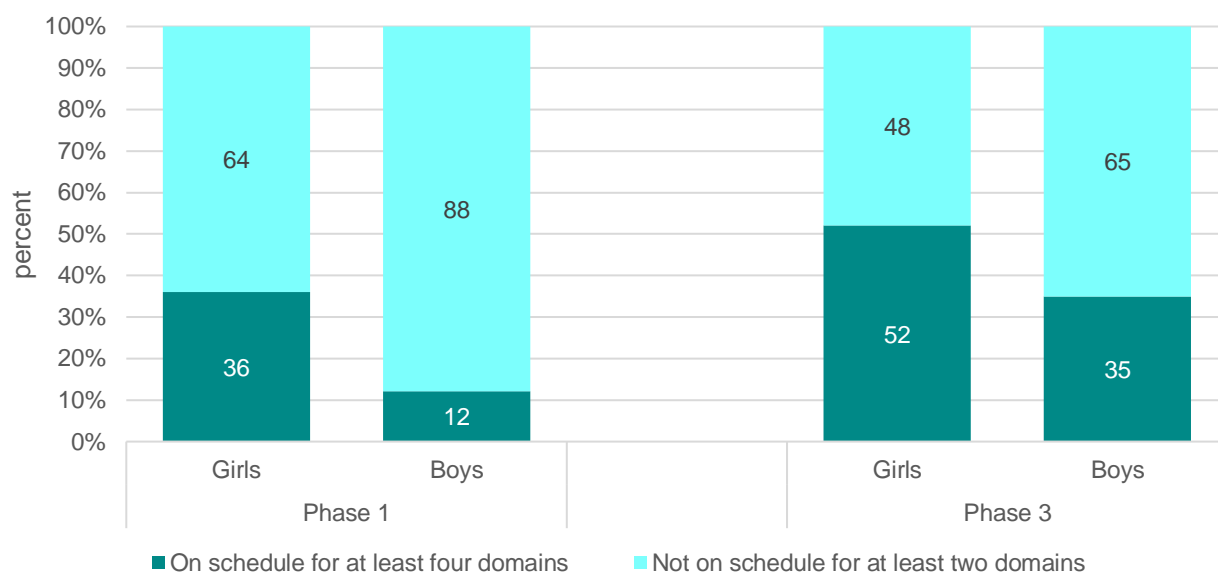
Figure 8: On schedule for at least four ASQ domains Phase 3, by on schedule for at least four ASQ domains Phase 1



Base: All children (with keyworker observations at both Phase 1 and Phase 3, unweighted)

The sex of the child showed a marginally statistically significant association with being on schedule for at least four domains and Figure 9 demonstrates quite a strong association between the sex of the child and being mostly on schedule at Phase 3²³. However once other factors are taken into account, the association becomes much weaker. This is because girls were more likely than boys to be on schedule at Phase 1 also, so the score at Phase 1 included in the model already accounts for some of the difference between boys and girls at Phase 3. The modelling process identifies the score at Phase 1 as the key driver behind the ASQ score at Phase 3, and being a girl only makes a small difference on top of that.

Figure 9: On schedule for at least four ASQ domains Phase 1 and Phase 3, by sex of child

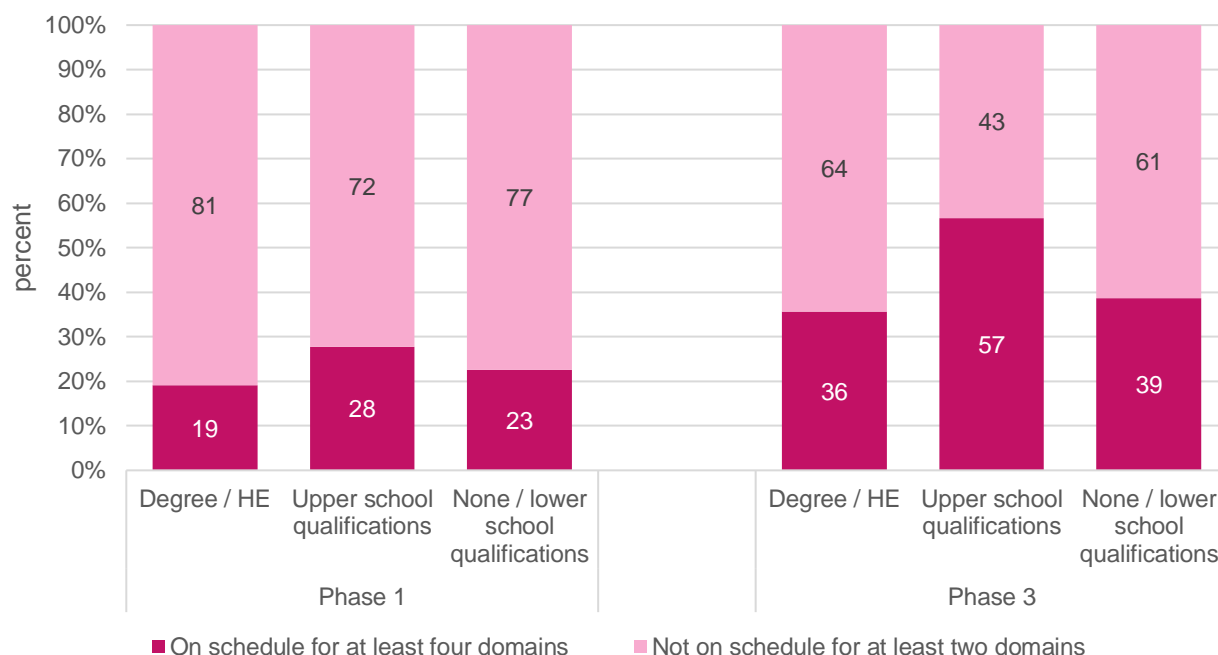


Base: All children (with ASQ scores at both Phase 1 and Phase 3, unweighted)

Two other variables included in the model – parent’s level of education and frequency of home learning activities - showed significant associations with being on schedule on at least four domains at Phase 3. These are illustrated in Figures 10 and 11. Unlike sex, both of these showed little association at age two, but differences had emerged by the age of three. Parents with upper school qualifications, such as Highers, or equivalent were more likely than those with no qualification or only lower school qualifications to have a child who was on schedule for at least four of the ASQ domains at Phase 3. This difference is much larger than at Phase 1. Perhaps surprisingly, they also appear more likely than those with a degree to have a child who was mostly on schedule, although we should not read too much into this because of the small sample size of parents of the Eligible 2s with a degree.

²³ Note that the base of this figure is those with ASQ scores at both Phase 1 and Phase 3, so percentages are likely to differ from those reported in later sections.

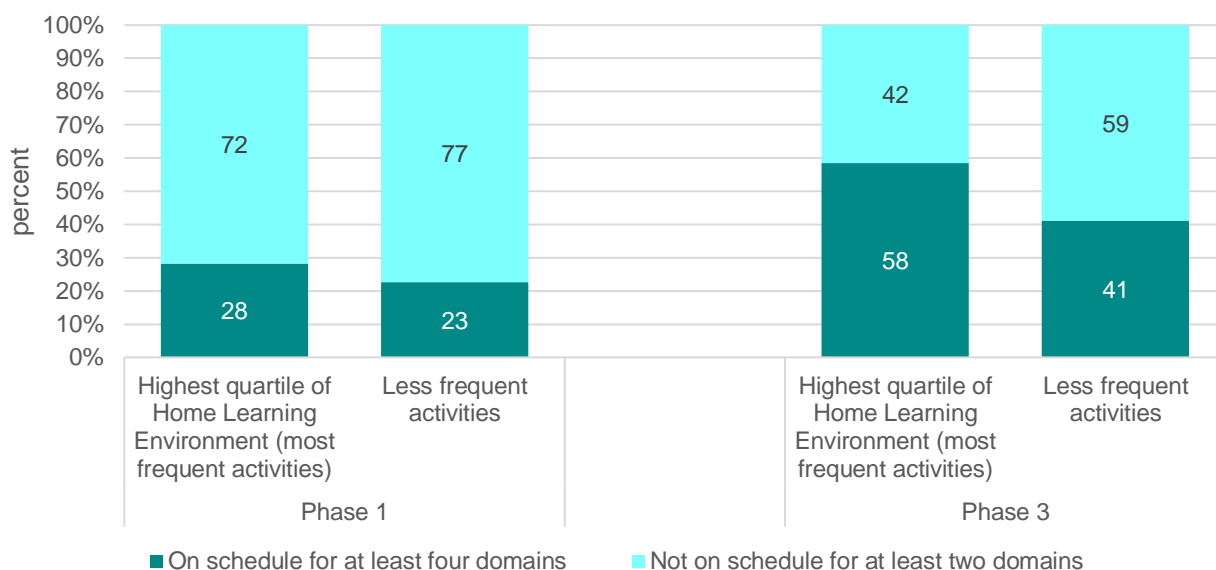
Figure 10: On schedule for at least four ASQ domains Phase 1 and Phase 3, by highest qualification of respondent Phase 1



Base: All children (with ASQ scores at both Phase 1 and Phase 3, unweighted)

Differences in the proportion of children mostly on schedule were much larger at Phase 3 than at Phase 1 when we compare children according to their home learning environment, as illustrated in Figure 11. Three fifths (58%) of those in the highest quartile of the home learning environment scale at age two were on schedule at age three, compared with two fifths (41%) in the other quartiles. This suggests that frequent learning activities at home around the age of two can make a difference a year later in helping children whose development may not be on schedule at the age of two. As seen earlier, good habits in home learning tend to persist, so it is likely that many of those involved in frequent activities at age two are also involved in frequent activities at age three, and it is the duration of home learning activities, rather than any instantaneous effect that helps children reach their developmental milestones.

Figure 11: On schedule for at least four ASQ domains Phase 1 and Phase 3, by home learning environment Phase 1



Base: All children (with ASQ scores at both Phase 1 and Phase 3, unweighted)

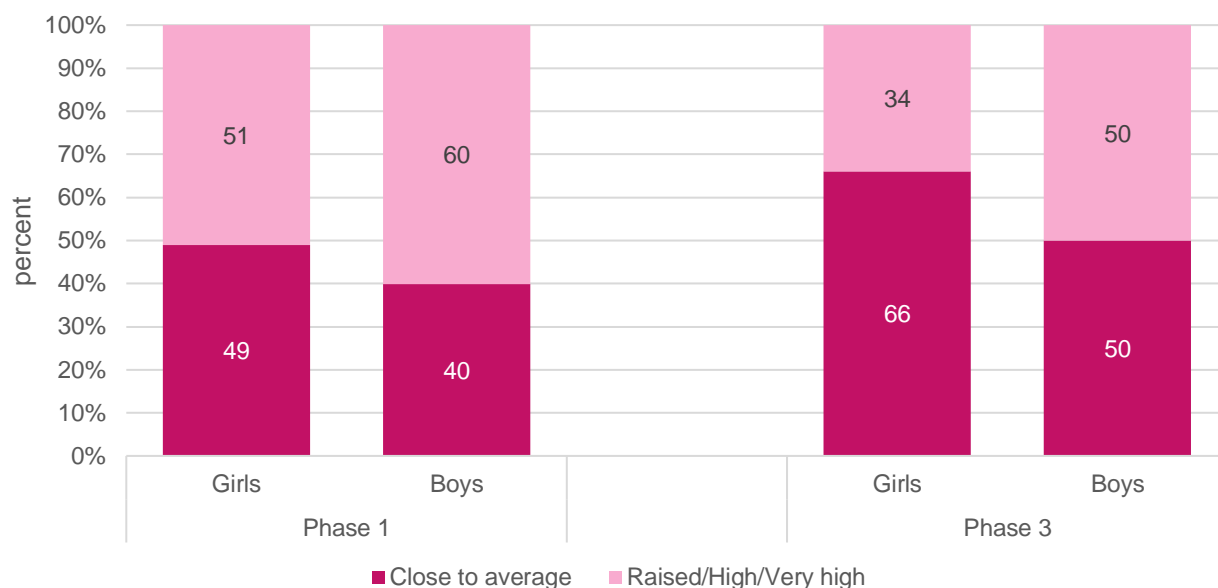
Two other variables were included in the model, but were not statistically significantly associated with the outcome measure. The rating of the ELC setting using ITERS was discussed earlier. Area deprivation also showed no association with being mostly on schedule. The associations with many other variables from Phase 1 were also tested, but not included in the final model. These included the number of parents in the household, whether the child had a long-term illness, and whether the respondent was in employment. None of these showed any significant association with being mostly on schedule. A full list of all the variables tested is included in Appendix D.

A similar model was constructed for having a close to average score on the total difficulties scale. Three variables were identified as the key drivers of achieving a close to average score at age three: a close to average score at age two, being female, and doing frequent home learning activities at age two.

The relationship between SDQ scores at Phase 1 and Phase 3 was discussed earlier and illustrated in Figure 6.

Figure 12 shows a slight widening of the gap between boys and girls in the proportion of children with a close to average SDQ score, from nine percentage points (49% of girls and 40% of boys) at age two, to 16 percentage points (66% of girls and 50% of boys) at age three.

Figure 12: Close to average SDQ total difficulties score Phase 1 and Phase 3, by sex of child

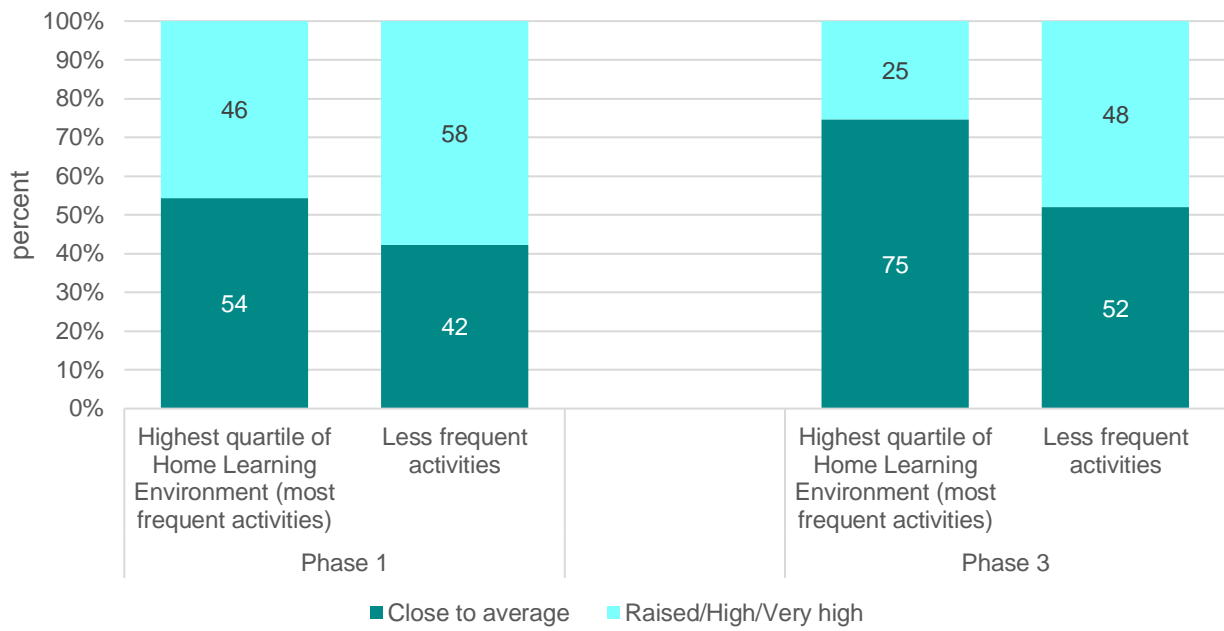


Base: All children (with ASQ scores at both Phase 1 and Phase 3, unweighted)

Figure 13 shows the increase in the gap in the proportion with close to average SDQ total difficulties scores between those undertaking learning activities at home most frequently and other children following one year of ELC. At age two, this gap was twelve percentage points (54% of those in the highest quartile of home learning environment scores compared with 42% of other children); by age three the gap had increased to 23 percentage points (75% of those in the highest quartile compared with 52% of other children). As noted earlier, while the home learning environment quartiles are a snapshot of the situation when the questionnaires were completed, at age two, in most cases they represent a continued level of home learning activity.

Other factors, including the rating of the ELC setting, area deprivation and parental education showed no association with SDQ total difficulties score at age three, once scores at age two, sex and home learning environment were taken into account.

Figure 13: Close to average SDQ total difficulties score Phase 1 and Phase 3, by home learning environment Phase 1



Base: All children (with ASQ scores at both Phase 1 and Phase 3, unweighted)

Parent outcomes

Economic activity

A second key strand to the ELC expansion programme is to enable parents to take up opportunities for work, study or training. Table 2 shows how the economic activities of parents have changed following a year of funded ELC.

Table 2: Economic activity, Phase 1 and Phase 3

	Phase 1	Phase 3
	%	%
Working 30 or more hours a week (including if on leave or sick)	10	8
Working fewer than 30 hours a week (including if on leave or sick)	25	33
On maternity/parental leave from an employer	2	2
Looking after home or family	72	63
Waiting to take up paid work already obtained	0	2
Out of work and looking for a job	8	9
Out of work because of long term sickness or disability	11	10
On a Government training or employment scheme	1	-
In full time education (including on vacation)	5	5
In part time education (including on vacation)	1	3
Wholly retired	1	1
Not in paid work for some other reason	10	9
<i>Unweighted base</i>	221	221

Base: All respondents (with parent questionnaire at both Phase 1 and Phase 3, unweighted)

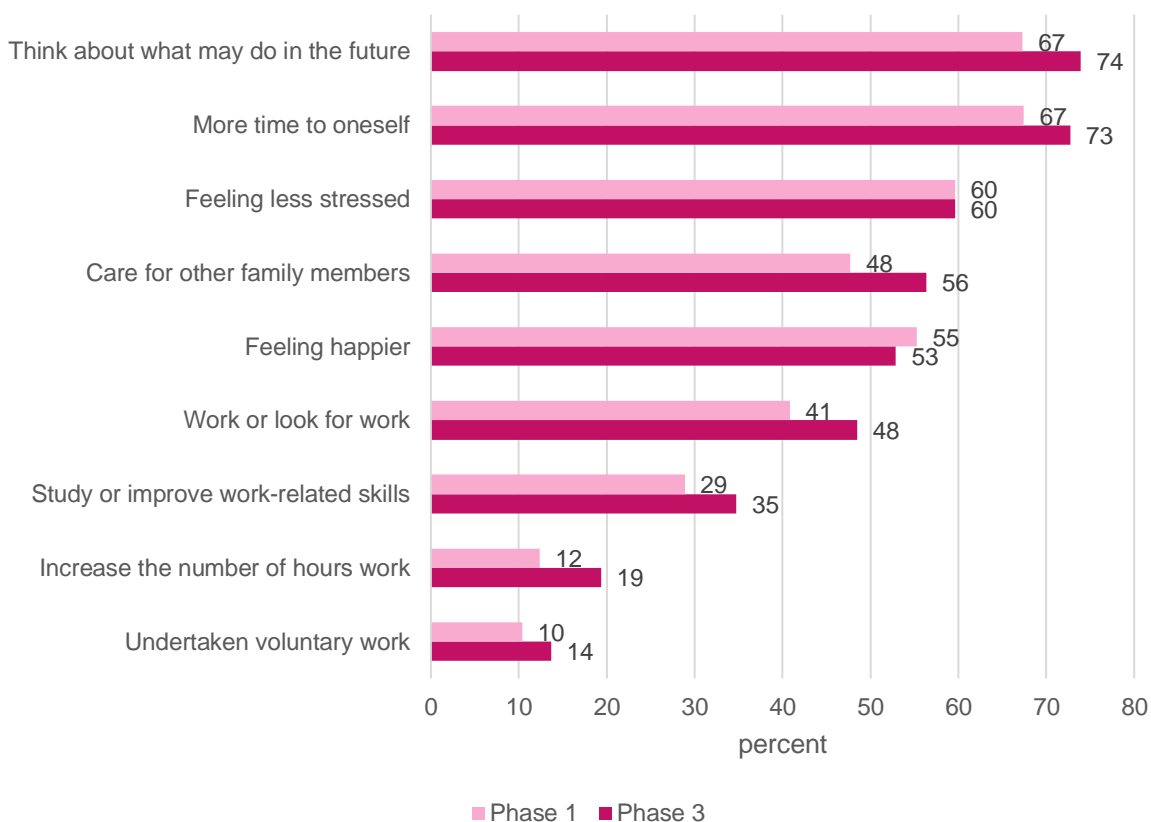
Table 2 shows that there is little change over the course of a year in terms of economic activity for parents and carers of children who were eligible for funded nursery places at the age of two. There was a small increase in the proportion who reported working part time, from 25% at Phase 1 to 33% at Phase 3, with the proportion in either part-time or full-time work increasing from 35% to 40%. There was also a corresponding drop in the proportion who reported looking after the home or family, from 72% to 63%. Of those who were in work or training at Phase 1, most (88%) remained in work at Phase 3. Similarly, most (83%) of those who were not in work at Phase 1 were not in work at Phase 3, while one in six (17%) of those who were not in work at Phase 1 had since found employment.

Those who were in work were asked at each phase whether they would work more hours if they could find good quality, affordable childcare. Just over half (55%) of those who were in employment at both phases agreed with this statement at Phase 3, an increase from Phase 1 (42%). A similar question was asked of those who were not in employment: whether a lack of affordable, good quality childcare is one of the main reasons for them not working. Smaller proportions of those not in employment at both phases agreed with this statement: 27% at Phase 3 and 32% at Phase 1.

Parental health and wellbeing

At both phases, parents were asked what they had been able to do because their child was in nursery. Responses are summarised in Figure 14.

Figure 14: Agreement with statements reflecting activities done / perceived change in feelings because of child being in nursery, Phase 1 and Phase 3



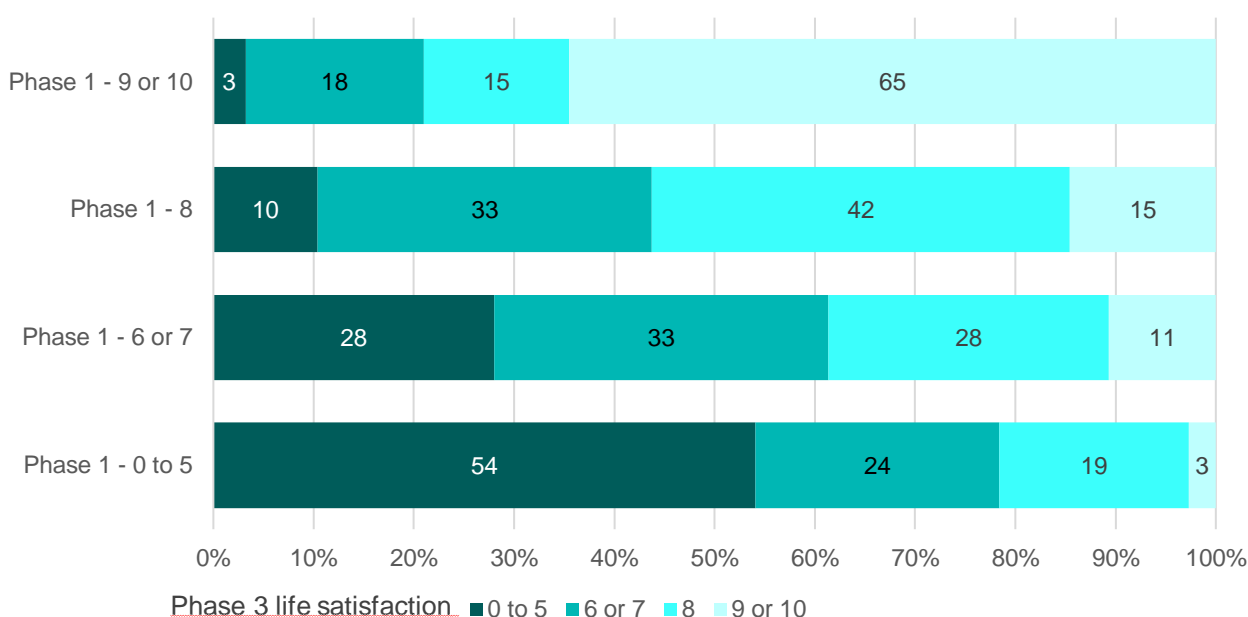
Base: All respondents (with parent questionnaire at both Phase 1 and Phase 3, unweighted)

Responses at Phase 3 tended to be very similar to those at Phase 1, with small increases in the proportion in agreement with some of the statements. Around three quarters of parents at Phase 3 agreed with the statements that they had been able to think about what they may do in the future (74%) and that they had more time to themselves (73%), in both cases up from 67% at Phase 1. The majority at Phase 3 were also feeling less stressed (60% at both Phase 1 and Phase 3), able to care for other family members (48% at Phase 1 and 56% at Phase 3), feeling happier (55% at Phase 1 and 53% at Phase 3). Smaller proportions agreed with the statements

concerning work-related activities, but in each case these represented a small increase across the year from Phase 1 to Phase 3. Half (48%) agreed they had been able to work or look for work because their child was in nursery, up from 41% at Phase 1, and a third (35%) agreed they had been able to study or improve work-related skills, up from 29% at Phase 1.

At both phases, parents were asked, on a scale of 0 to 10, how satisfied they were with their lives as a whole nowadays. Despite the generally positive findings above, 22% of parents rated their lives no more than 5 out of 10 at Phase 3, up from 17% at Phase 1. Figure 15 shows how levels of life satisfaction had changed over time for individual parents. Two thirds (65%) of those who appeared most satisfied with their lives at Phase 1, when their child was aged two, scored themselves a 9 or 10 again one year later, at Phase 3. Just over half (54%) of those who were least satisfied with their lives at Phase 1 again scored themselves no more than 5 out of 10 at Phase 3. However, for many parents there was change in the levels of life satisfaction, which are likely to reflect changes in circumstances beyond the scope of this survey.

Figure 15: Life satisfaction Phase 3 by life satisfaction Phase 1



Base: All respondents (with parent questionnaire at both Phase 1 and Phase 3, unweighted)

Finally, parents were asked how they were coping as a parent. At Phase 3, 58% said they were coping well most or all of the time, showing little change from Phase 1 (59%). A further 38% at each phase said they felt they were coping, but sometimes things got on top of them. Only 4% at Phase 3 and 3% at Phase 1 felt that most or all of the time they were not coping well (Appendix C Table C14). Again there was some movement between response categories for individual parents, but overall there was very little change following a year of nursery.

Comparison of outcomes between Eligible 2s at Phase 3 and Comparator 3s

Child health and development

Assessments of development

The keyworker observations for both the Eligible 2s and the Comparator 3s used the Ages and Stages Questionnaire and the Strengths and Difficulties Questionnaire to assess child development. More detail about these was provided in the earlier section on changes in child health and development for the Eligible 2s.

Figures for the Eligible 2s at Phase 3 reported in this section are likely to differ slightly from those reported earlier. This is because the earlier analysis was restricted to those who had keyworker questionnaires at both phases, whereas the analysis in this section includes a small number of additional children for whom a keyworker questionnaire was completed at Phase 3, but only a parent questionnaire at Phase 1.

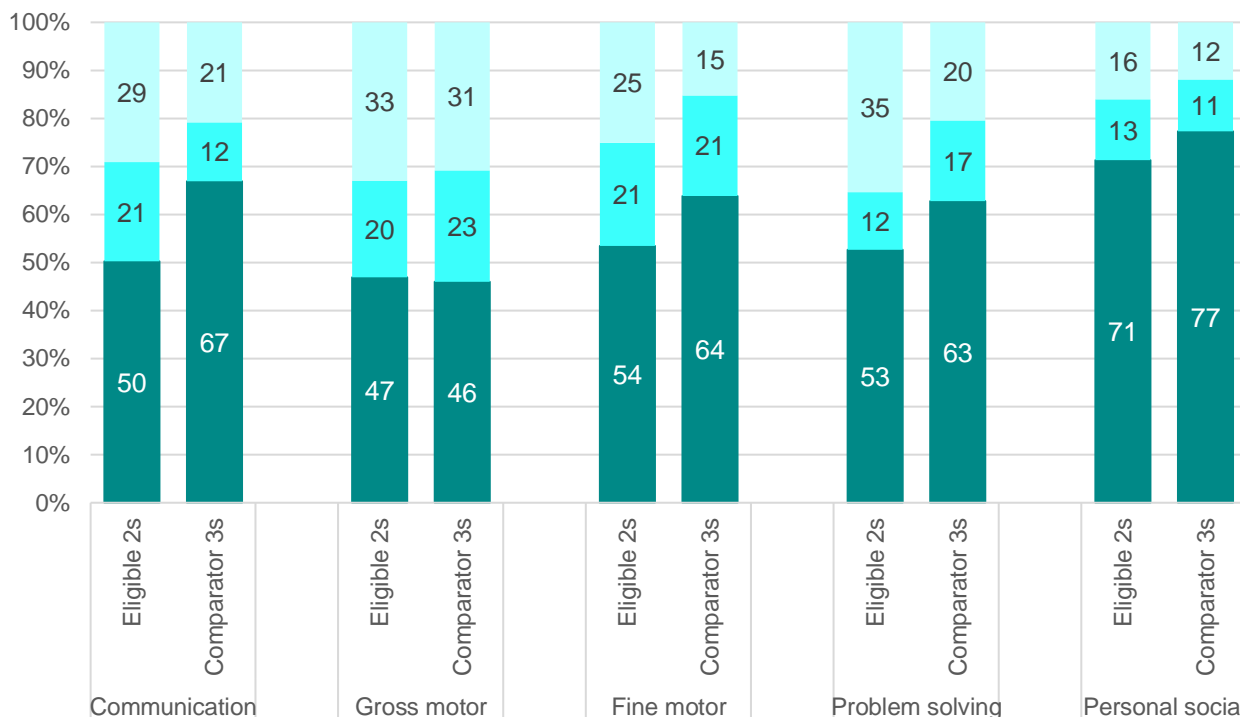
Ages and Stages Questionnaire

Figure 16 shows scores for both the Eligible 2s and the Comparator 3s on each of the ASQ domains. Earlier we saw improvements on four of the five domains in the proportion of Eligible 2s on schedule following a year of funded ELC (Figure 3)²⁴. Figure 16 shows that for the same four domains (the exception being the gross motor domain) there is a difference between the proportions on schedule at Phase 3 for the Eligible 2s and the Comparator 3s. Once the programme to increase the funded hours of ELC has been fully rolled out, it will be of particular interest to assess whether these gaps at age three have decreased.

The largest difference in the proportion on schedule was for the communication domain: two thirds (67%) of the Comparator 3s were on schedule at Phase 3 compared with half (50%) of the Eligible 2s. Smaller differences were observed for the fine motor domain (64% of the Comparator 3s and 54% of the Eligible 2s were on schedule), the problem solving domain (63% of the Comparator 3s and 53% of the Eligible 2s on schedule) and the personal-social domain (77% of the Comparator 3s and 71% of the Eligible 2s on schedule). The gross motor skills domain was the one with the smallest proportion of children on schedule, and no difference between the two groups (47% of the Eligible 2s and 46% of the Comparator 3s on schedule).

²⁴ The small differences in the numbers shown in Figure 3 and Figure 16 for the Eligible 2s at Phase 3 are due to the inclusion of a small number of additional children in Figure 16 for whom keyworker observations were completed at Phase 3 but not at Phase 1.

Figure 16: ASQ score by domain, Eligible 2s and Comparator 3s, Phase 3

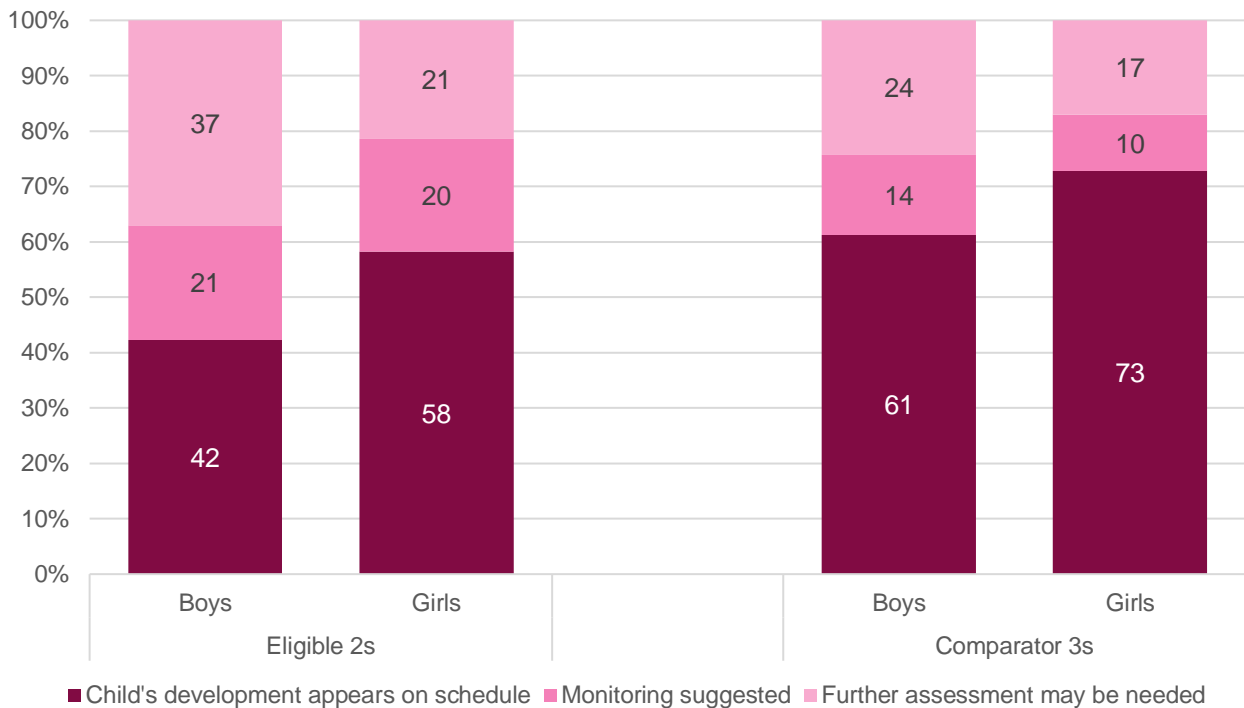


Base: All children (keyworker observations Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Differences by gender were slightly more evident for the Eligible 2s than for the Comparator 3s, although they were still present for both groups on all but the gross motor domain. Figure 17 shows that 58% of girls and 42% of boys in the Eligible 2s group, a gap of 16 percentage points, were on schedule for the ASQ communication domain, while 73% of girls and 61% of boys in the Comparator 3s group were on schedule, a gap of 12 percentage points. Figures for the other domains are shown in Appendix C Table C15.

Differences between boys and girls in the proportion on schedule were largest for the fine motor domain: 67% of girls and 40% of boys among the Eligible 2s on schedule, and 75% of girls and 53% of boys on schedule among the Comparator 3s. Girls also outperformed boys on the problem solving and personal-social domains for both groups, while there was no real difference between boys and girls on the gross motor domain for either group.

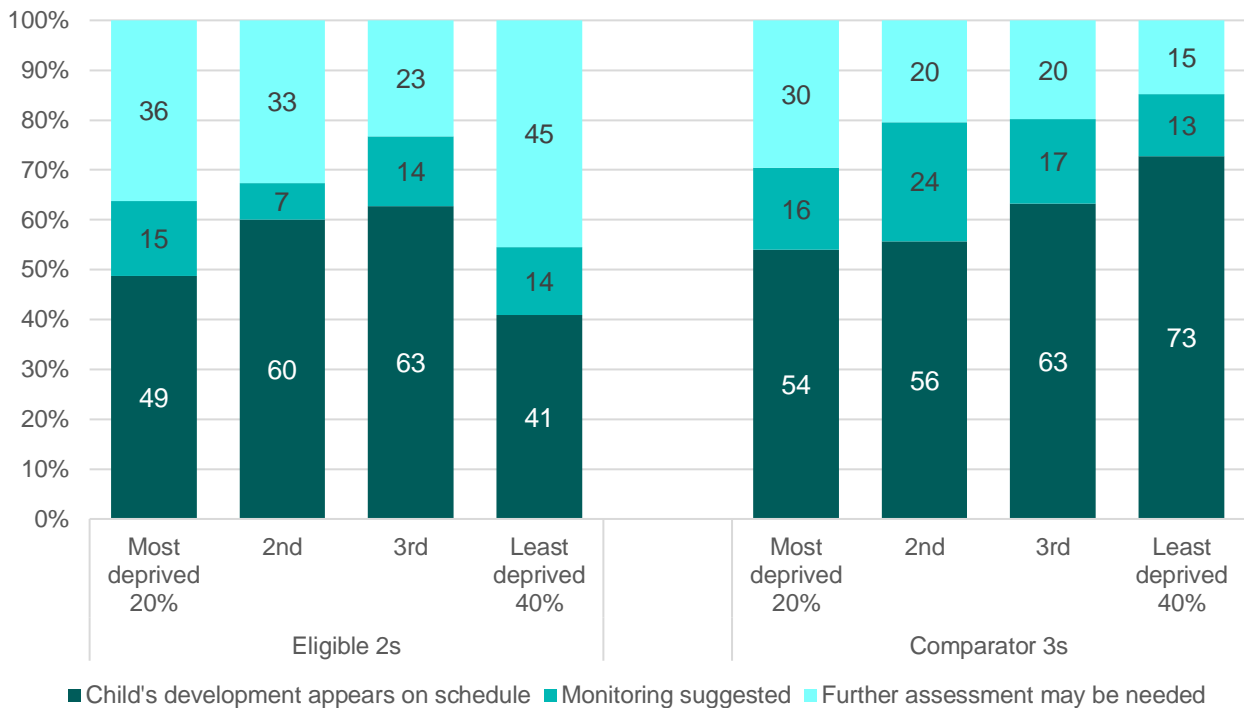
Figure 17: ASQ communication domain by sex, Eligible 2s and Comparator 3s, Phase 3



Base: All children (keyworker observations Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Figure 18 shows the ASQ problem solving domain broken down by area deprivation for both the Eligible 2s and the Comparator 3s. For the Comparator 3s, the proportion on schedule tended to increase with decreasing levels of deprivation, from 54% on schedule in the most deprived 20% of areas to 73% on schedule in the least deprived 40%. The Eligible 2s are more similar to each other in terms of deprivation, so the same pattern was not evident. Differences between the groups on the other domains tended to be smaller for the Eligible 2s than for the Comparator 3s and were not statistically significant for the Comparator 3s on any of them.

Figure 18: ASQ problem solving domain by SIMD, Eligible 2s and Comparator 3s, Phase 3

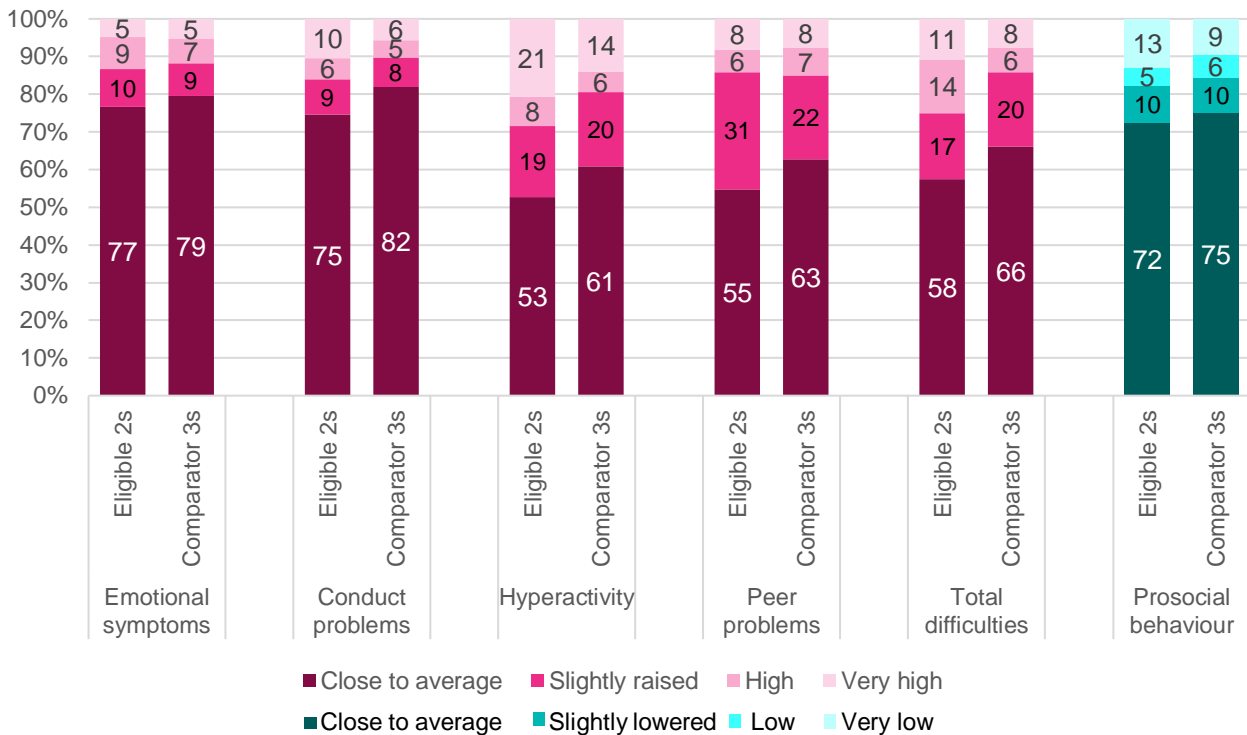


Base: All children (keyworker observations Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Strengths and Difficulties Questionnaire

Figure 19 shows that for the emotional symptoms and prosocial behaviour domains, the differences between the Eligible 2s and the Comparator 3s were very small. Around three quarters of children scored close to average on the emotional symptoms domain (77% of the Eligible 2s and 79% of the Comparator 3s) and on the prosocial behaviour domain (72% of the Eligible 2s and 75% of the Comparator 3s). Differences in the total difficulties score (58% of the Eligible 2s close to average, compared with 66% of the Comparator 3s) were driven by differences in the conduct problems domain (75% of the Eligible 2s and 82% of the Comparator 3s close to average), the hyperactivity domain (53% of the Eligible 2s and 61% of the Comparator 3s) and the peer problems domain (55% of the Eligible 2s and 63% of the Comparator 3s).

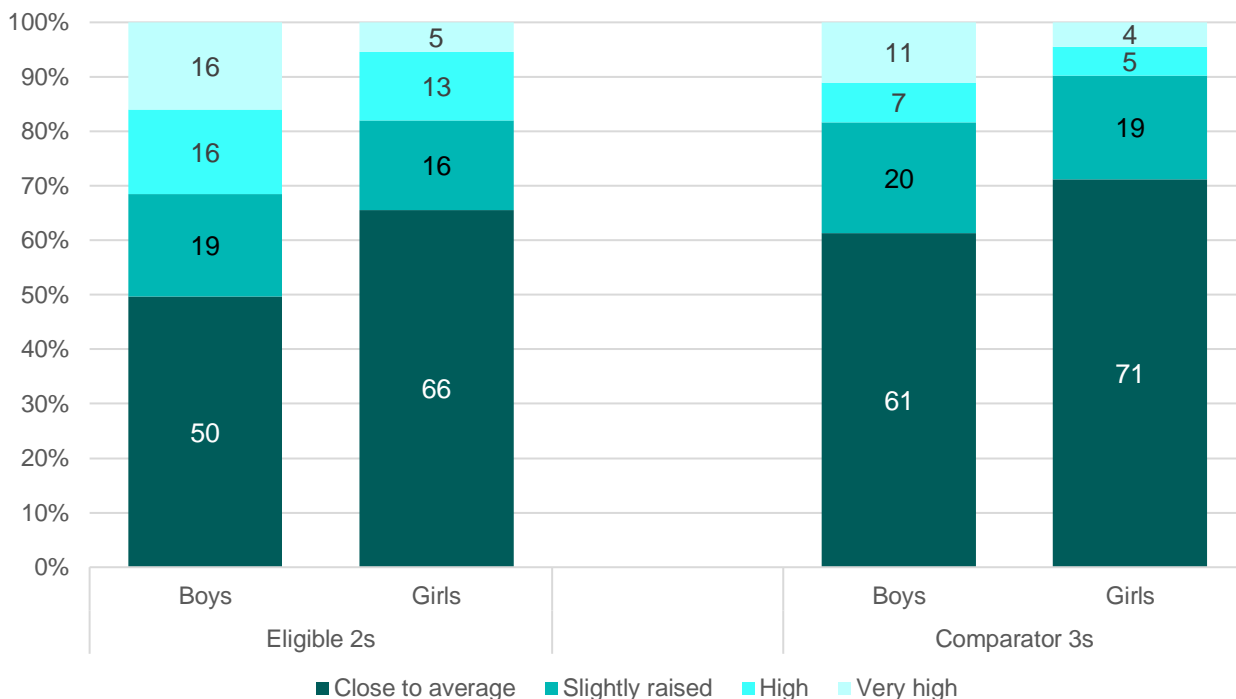
Figure 19: SDQ score by domain, Eligible 2s and Comparator 3s, Phase 3



Base: All children (keyworker observations Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

With the exception of the emotional symptoms domain, the proportion of girls scoring close to average was higher than the proportion of boys for both the Eligible 2s and the Comparator 3s. This is illustrated in Figure 20 for the total difficulties score. Among the Eligible 2s, two thirds (66%) of the girls scored close to average, compared with half of the boys (50%). For the Comparator 3s, these figures were 71% of the girls and 61% of the boys. Table C16 in Appendix C shows the proportions scoring close to average for the individual domains. Differences by area deprivation appeared larger for the Comparator 3s than for the Eligible 2s, but were not statistically significant for any of the domains.

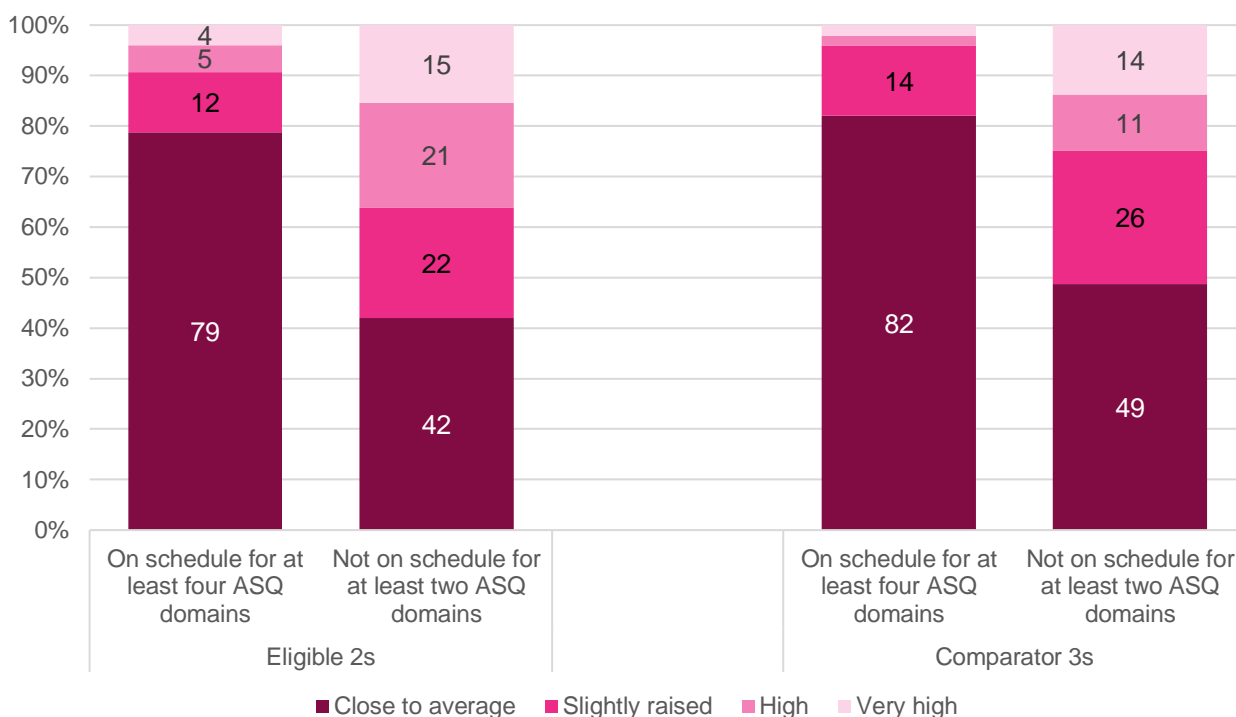
Figure 20: SDQ total difficulties score by sex, Eligible 2s and Comparator 3s, Phase 3



Base: All children (keyworker observations Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Given the similar findings demonstrated so far on the ASQ and SDQ measures of child development, it is not surprising to note that there is a strong correlation between the two. However, as Figure 21 also illustrates, there is a clear difference between the measures, with the ASQ combining measures of physical, cognitive and social development, and the SDQ having a more narrow focus on social, emotional and behavioural development. For both the Eligible 2s and the Comparator 3s, around four in five of those who were on schedule for at least four of the ASQ domains scored close to average on the SDQ total difficulties scale (79% of the Eligible 2s and 82% of the Comparator 3s). Much lower proportions of those who were on schedule for no more than three of the ASQ domains scored close to average on the SDQ scale (42% of the Eligible 2s and 49% of the Comparator 3s). This implies firstly that there are a number of children for whom issues are being picked up on both scales. Hence where a physical development problem is observed, it is important to consider whether there may be other developmental problems of a social or emotional nature. It also implies that there are a number of children who may be slower in their development in one area, but not in others. It is therefore important to consider a range of measures, as covered by the ASQ and SDQ, to identify potential delays in development, so that children do not miss out on the support they may need in specific areas just because their development is on schedule in others.

Figure 21: SDQ total difficulties score by whether on schedule for at least 4 ASQ domains, Eligible 2s and Comparator 3s, Phase 3



Base: All children (keyworker observations Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

General health

Most children were described as being in good or very good health by their parent or carer, although the proportion was slightly higher for the Comparator 3s than the Eligible 2s (96% and 91% respectively). No significant patterns were observed for either group in terms of health by sex, area deprivation or the type of household in which the child lived.

The proportion of children with a longstanding illness or health condition was higher for the Eligible 2s than for the Comparator 3s: 14% of the Eligible 2s had a longstanding condition (11% had a limiting longstanding condition), compared with 7% of the Comparator 3s (4% a limiting one). This difference was largely due to children receiving discretionary funding from their local authority at age two, 31% of whom had a longstanding illness at age three (22% limiting), compared with 10% of the Eligible 2s who had state funded places (8% limiting). For many of these cases, the longstanding condition was likely to be the reason for providing a funded place.

A quarter (25%) of the parents of the Eligible 2s and one in five (20%) of the parents of the Comparator 3s who had a longstanding condition reported that it affected their child in multiple ways. The most commonly reported way in which children were affected were stamina or breathing difficulties (46% of the Eligible 2s with a condition and 28% of the Comparator 3s).

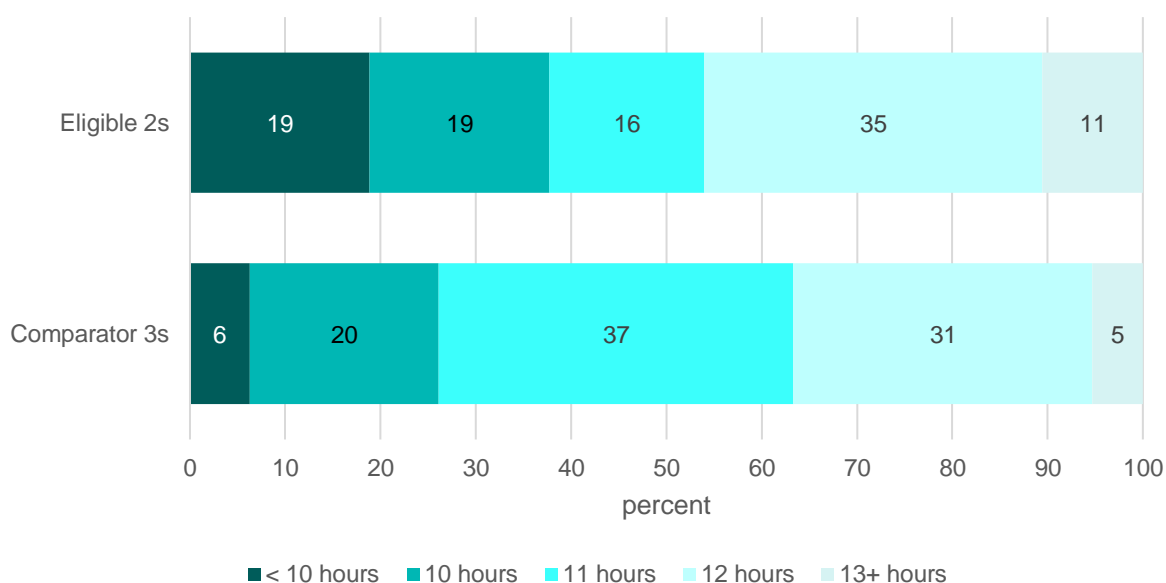
Parents of the Eligible 2s were more likely than those of the Comparator 3s to mention concerns about how their child talks. A quarter (25%) of the parents of the Eligible 2s mentioned such concerns, compared with one in six (17%) of the parents of the Comparator 3s. For both groups, concerns about what the child understands were mentioned less frequently (12% of the Eligible 2s and 7% of the Comparator 3s). Among the Eligible 2s, concerns about how their child talks were higher for those receiving discretionary funding from their local authority (36%) than those funded through their statutory entitlement (22%). For these cases, speech and development concerns may have been related to the reason for receiving a funded place.

Home environment

Children spend a lot more time at home than they do in nursery each week, so it is important to consider the home environment when discussing their development. The home environment can be very complex, comprising relationships within the household, as well as the physical environment, and we have chosen to look at four different aspects of home life which previous studies have found to be associated with child development: sleeping patterns, breastfeeding, the frequency of undertaking learning activities with an adult, and the general level of order or chaos within the home.

A higher proportion of children in the Eligible 2s group never slept through the night than in the Comparator 3s group (18% and 12% respectively, see Appendix C Table C17). This is reflected in the amount of sleep children get each night, with 19% of the Eligible 2s getting less than 10 hours, compared with 6% of the Comparator 3s (Figure 22).

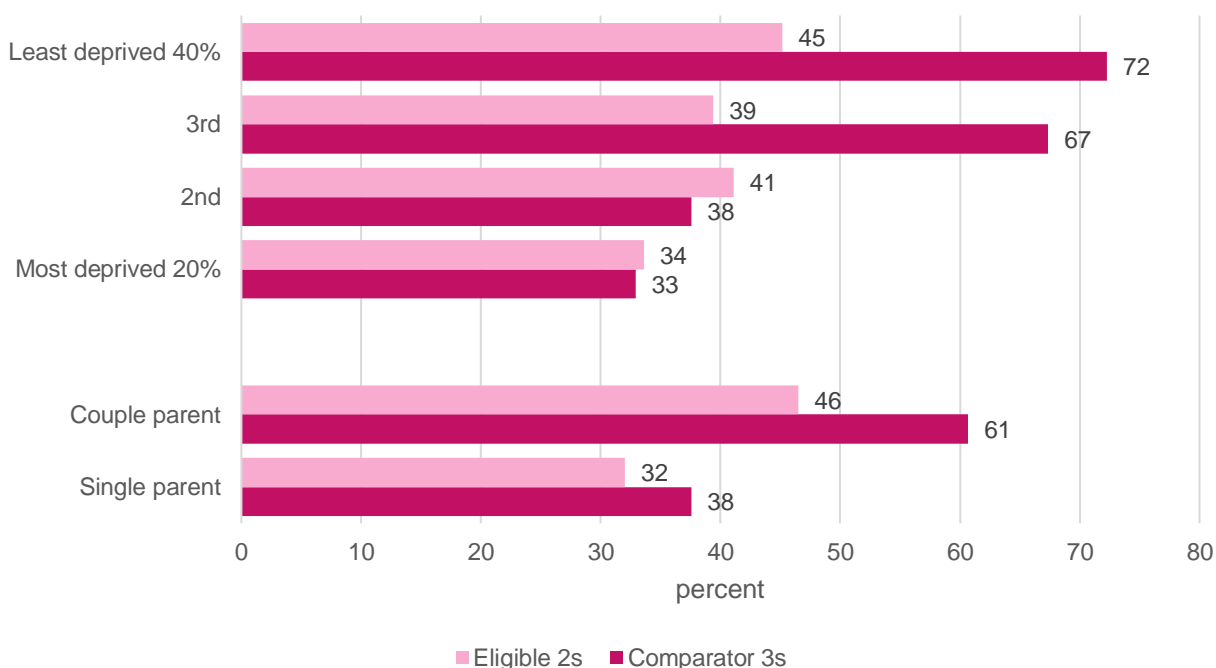
Figure 22: Hours of sleep per 24 hours, Eligible 2s and Comparator 3s, Phase 3



Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Breastfeeding was more common among the Comparator 3s than among the Eligible 2s, and within the Comparator 3s it was more common in two parent households than in single parent households, and in less deprived areas. More than half (57%) of the Comparator 3s group were breastfed as babies, compared with just over a third (38%) of the Eligible 2s. Of the Comparator 3s in two parent households, 61% were breastfed, compared with 38% in single parent households. While there was a difference for the Eligible 2s, it was not so stark: 46% of those in two parent households were breastfed, compared with 32% of those in single parent households. In the most deprived areas, there was no difference between the two groups, with a third of each having been breastfed (34% of the Eligible 2s and 33% of the Comparator 3s). However, in the least deprived areas, the Comparator 3s were much more likely to have been breastfed (72% compared with 45% of the Eligible 2s) (see Figure 23).

Figure 23: Whether child was breastfed, Eligible 2s and Comparator 3s, Phase 3



Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table 3 shows the four different activities that make up the home learning environment scale. While it shows some large differences between boys and girls in the frequency of undertaking particular activities at home, it shows few differences between the Eligible 2s and the Comparator 3s. The Comparator 3s were slightly more likely than the Eligible 2s to look at books every day (62% compared with 54%), and girls within the Comparator 3s were also more likely than boys to do the same (68% compared with 56%). A quarter of children in both groups did painting or drawing with someone in their own home every day (25% of the Eligible 2s and 23% of the Comparator 3s). In both groups girls were twice as likely as boys to paint or draw every day (33% of girls and 16% of boys in the Eligible 2s, and 32% of girls and 15% of boys in the Comparator 3s). Nine percent of boys in the Eligible 2s group had done no painting or drawing in the previous 7 days, compared with

2% of girls in that group, and 1% of children in the Comparator 3s. Girls were also more likely than boys to recite nursery rhymes or sing songs every day in both groups (79% of girls and 53% of boys in the Eligible 2s, and 68% of girls and 54% of boys in the Comparator 3s), although there was little difference in the figures for the two groups (66% of the Eligible 2s and 61% of the Comparator 3s). There were no real differences between boys and girls or between the two groups in terms of playing at recognising letters, words, numbers or shapes, with just under half of each group doing so every day (45% of the Eligible 2s and 39% of the Comparator 3s). The frequency of looking at books was associated with area deprivation among the Comparator 3s, with children increasingly likely to look at books every day as levels of deprivation decreased (see Table C18 in Appendix C), although there was no association with area deprivation for any of the other activities.

Table 3: Frequency of home learning activities by child sex, Eligible 2s and Comparator 3s, Phase 3

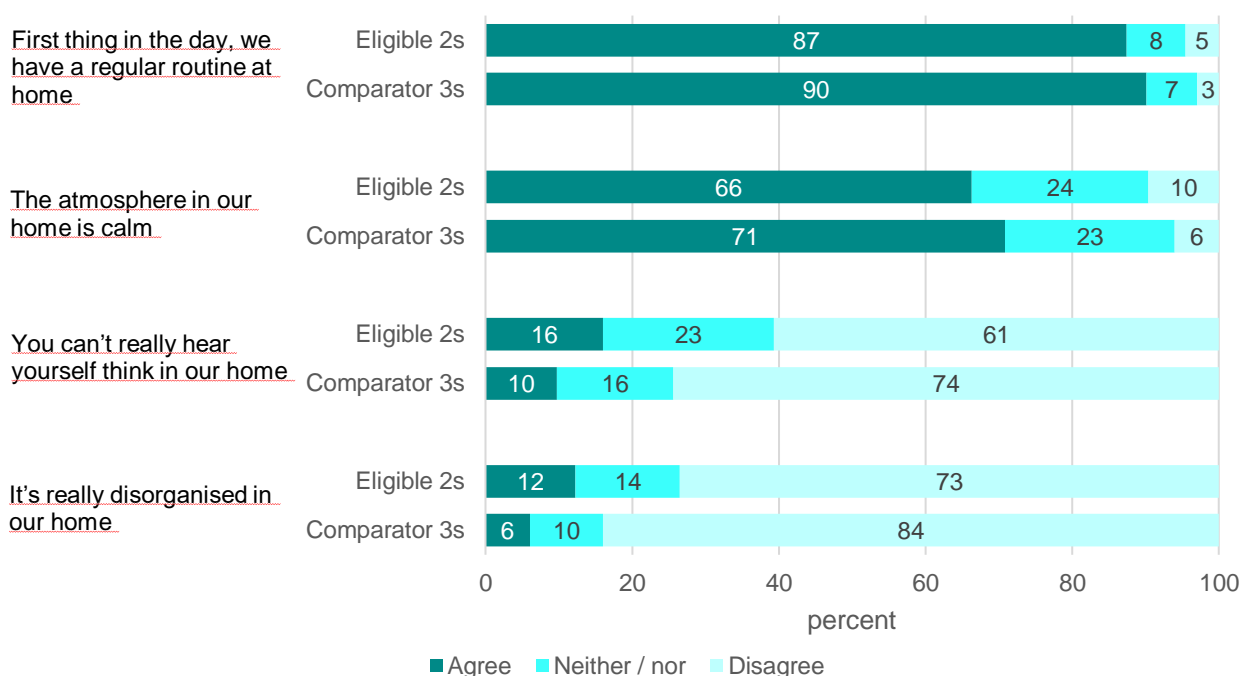
	Eligible 2s			Comparator 3s		
	Boys	Girls	All	Boys	Girls	All
	%	%	%	%	%	%
Looked at books or read stories						
Not in last 7 days	4	-	2	0	-	0
1 to 3 days	22	18	20	18	9	14
4 to 6 days	20	27	24	25	23	24
7 days	54	55	54	56	68	62
Painting or drawing						
Not in last 7 days	9	2	6	0	1	1
1 to 3 days	43	30	36	48	23	36
4 to 6 days	32	36	34	37	44	40
7 days	16	33	25	15	32	23
Recited nursery rhymes or sung songs						
Not in last 7 days	5	1	3	2	-	1
1 to 3 days	18	4	11	11	6	9
4 to 6 days	23	16	19	32	26	29
7 days	53	79	66	54	68	61
Recognising letters, words, numbers or shapes						
Not in last 7 days	8	1	5	3	2	2
1 to 3 days	24	17	20	28	23	26
4 to 6 days	25	34	30	31	34	33
7 days	42	47	45	38	40	39
<i>Unweighted base</i>	<i>130</i>	<i>135</i>	<i>265</i>	<i>284</i>	<i>272</i>	<i>558</i>
<i>Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)</i>						

The four activities listed above can be made into a scale from 0 to 28 by summing the number of days on which activity was undertaken in the previous week. This is a useful way of summarising the activities, allowing us to identify the children who engage in home learning activities most frequently. This scale will be used in the

next section when we come to look at the associations between the SDQ and ASQ assessments of development and the home environment.

Figure 24 compares responses from parents in both samples on questions designed to measure the level of order within the home. While there were small differences between parents of the Eligible 2s and the Comparator 3s, the vast majority of parents in both groups agreed with the first two items - that first thing in the day they have a regular routine at home, and that the atmosphere in their home is calm - and disagreed with the other two items, that they can't really hear themselves think in their home, and that it's really disorganised in their home. Like the home learning environment, a scale created from summing responses to these four questions²⁵ will also be used in the next section.

Figure 24: Items from the Confusion, Hubbub and Order Scale (CHAOS), Eligible 2s and Comparator 3s, Phase 3



Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Assessments of development and home/nursery environment

In this section we shall look at the associations between children's development and a number of factors characterising the children's home life or childcare arrangements. While we know that a large range of factors are likely to show either positive or negative associations, we shall use logistic regression modelling in order

²⁵ Response categories were reversed for the final two items before summing responses, so that for each question a higher value implied less order and more chaos within the home.

to identify the strongest associations. More details of this technique, including the tables and how to read them, are included in Appendix D.

Two models were constructed for each sample: one to identify factors most strongly associated with being on schedule for at least four of the ASQ domains and one to identify factors most strongly associated with having a close to average SDQ total difficulties score. The first thing to note about both models (Tables D3 to D6 in Appendix D) is that neither are able to explain a great deal of the variation between children²⁶. This indicates that child development is very difficult to predict, and that there are a huge number of factors which may influence development, such as genetics or the details of activities and interactions both inside and outside of the home that we were not able to capture in the surveys. The earlier models using longitudinal data for the Eligible 2s had greater predictive power because they included development at age two (Phase 1) as one of the predictor variables. Factors which affected the Phase 1 score, whether they could be measured or not, were still reflected in the Phase 1 score, hence the greater explanatory power of the longitudinal models.

The four models all include whether the child was a boy or a girl, the level of deprivation of the home address, and whether the child had a long-term condition which might affect their development, reported by either the parent or the keyworker. These were not necessarily statistically significant in each of the models, but were included to demonstrate that they had been controlled. All other factors shown in Tables D3 to D6 in Appendix D were statistically significant at the 10% level or lower. A much larger group of factors was tested for inclusion in the models, but the tables as reported include only those that demonstrated a statistically significant association with the outcome once other factors were taken into account. More details, including a full list of the factors that were tested, are included in Appendix D.

Table 4 summarises the two models for being on schedule for at least four of the five domains of the ASQ. It shows that two factors for the Eligible 2s and four factors for the Comparator 3s demonstrated an independent association with being on schedule once other factors were taken into account. For the Eligible 2s, not having a long-term health condition, and being amongst the group who did learning activities at home with an adult most frequently, were the strongest predictors of being on schedule for at least four domains. For the Comparator 3s, the strongest predictor was having a parent with a degree or upper-school or post-school qualifications (such as highers, HNC, etc.). Other marginally significant predictors were being female, speaking English at home as the only or main language, and having a parent with no long-term health condition.

²⁶ The proportion of the variation explained by the model is represented by the value of Nagelkerke's R-square. This is a measure that mimics R-square as used in linear regression but cannot be interpreted in quite the same way as the actual proportion of the variation. Instead we just recognise that 0.1 is quite low, whereas above 0.2 for this type of data would allow us to be more confident that we had captured the main drivers.

Table 4: Key drivers of demonstrating development on schedule for at least two domains of the Ages and Stages Questionnaire, Eligible 2s and Comparator 3s, Phase 3

	Statistical significance	
	Eligible 2s	Comparator 3s
Female		+
No long-term health condition	+++	
English main / only language		+
Highest quartile of the home learning environment scale (most frequent learning activities)	+++	
Parent has degree or upper school qualifications		+++
Parent has no long-term health condition		+
<i>Unweighted base</i>	243	515

Base: All children (with responses to both parent questionnaire and keyworker observations, Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

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

These associations can be demonstrated through a series of charts – although the figures included in the charts do not control for other factors in the way that the regression analysis allows.

Figure 25 shows that girls were more likely than boys to be on schedule for at least four of the five ASQ domains for both the Eligible 2s and the Comparator 3s (Eligible 2s – 51% of girls on schedule compared with 34% of boys; Comparator 3s – 56% of girls compared with 46% of boys). While Figure 25 clearly demonstrates a large difference for both groups, sex is only significant for the Comparator 3s in the models (Table 4). This is partly due to interactions with other items in the model²⁷. The modelling process recognises the home learning environment as a stronger driver of outcomes than being a boy or a girl for the Eligible 2s. As we have seen previously (Table 3) there is a strong association between home learning environment and sex. Once we have accounted for home learning environment, the difference between boys and girls is much smaller.

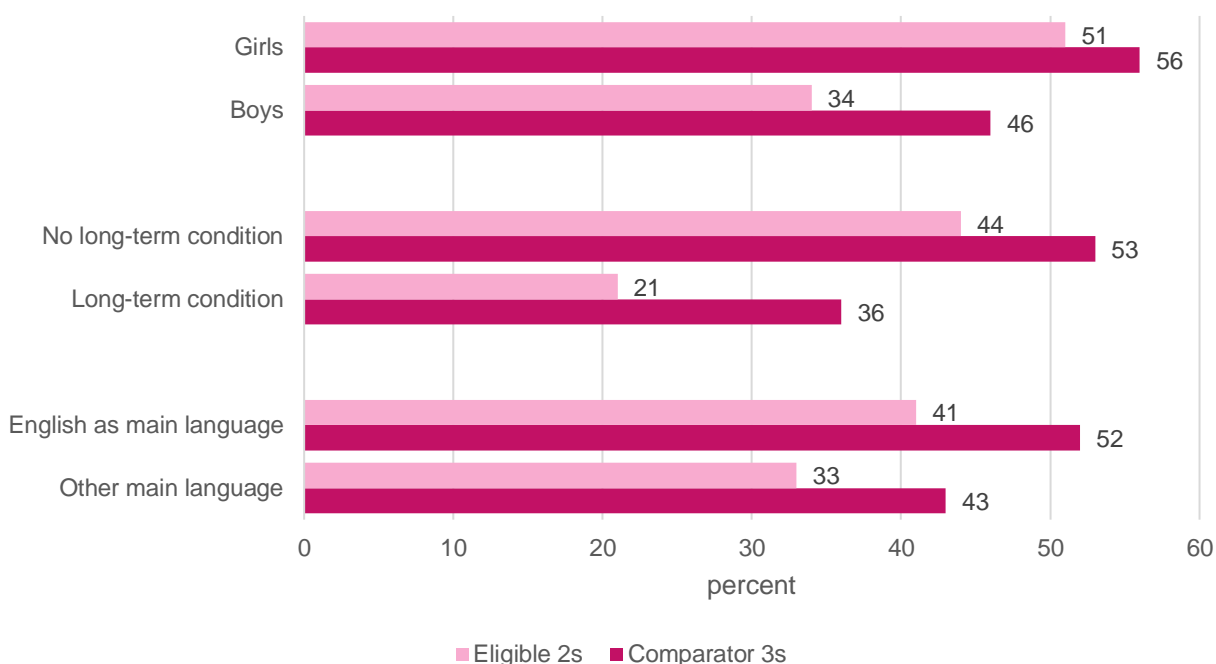
Figure 25 also shows large differences in the proportion of children on schedule for at least four domains between those with a long-term health condition or illness and those without for both the Eligible 2s and the Comparator 3s. On this occasion, because of the relatively small numbers with long-term conditions among the Comparator 3s, the modelling process did not identify having a long-term condition or not as one of the key drivers for the Comparator 3s, although Figure 25 clearly identifies a difference: 53% of the Comparator 3s and 44% of the Eligible 2s with no

²⁷ It is also partly due to the smaller sample size in the regression model, including only cases with completed keyworker and parent questionnaires.

long-term condition were on schedule for at least four domains, compared with 36% of the Comparator 3s and 21% of the Eligible 2s with a condition.

Figure 25 also shows small, marginally-significant differences depending on whether English is the main language spoken at home or not²⁸.

Figure 25: On schedule for at least four ASQ domains, by sex, whether child has a long-term condition and whether English is the main language spoken at home, Eligible 2s and Comparator 3s, Phase 3



Base: All children (with responses to keyworker observations (girls / boys), and with responses to both parent questionnaire and keyworker observations (long-term conditions and language), Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

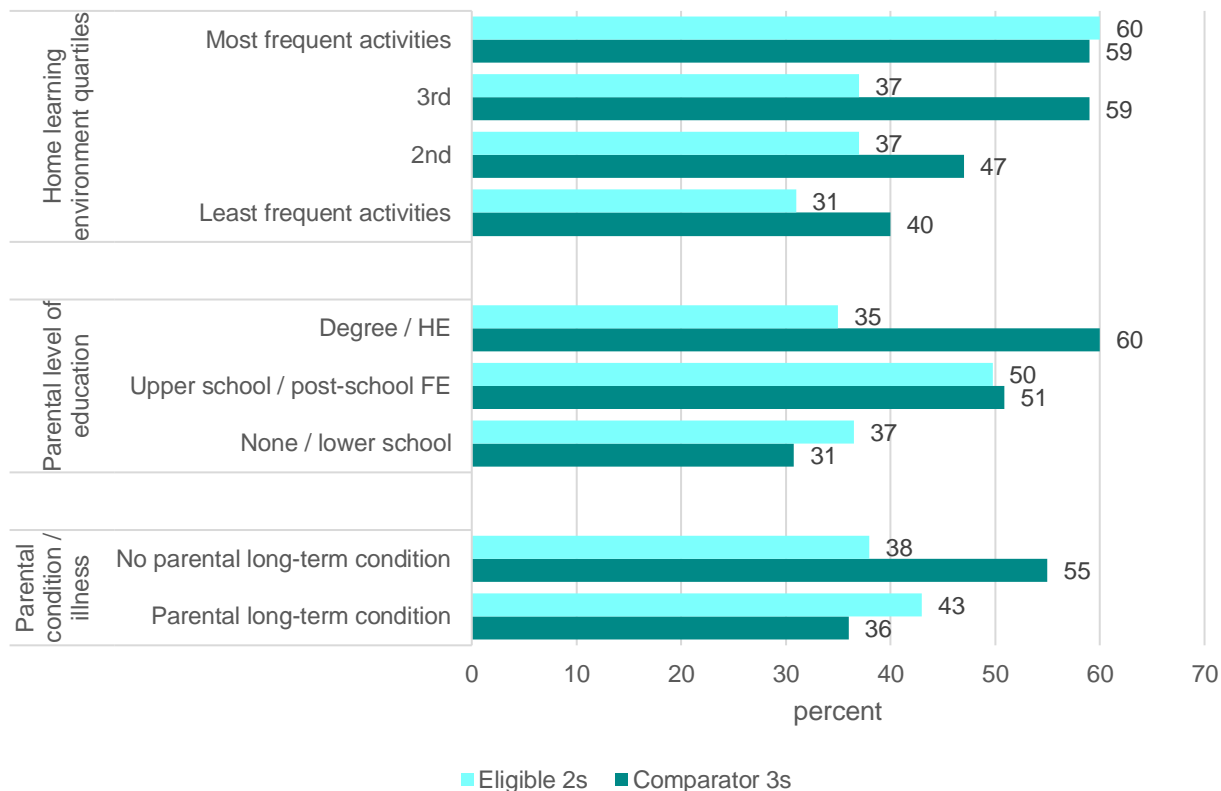
Figure 26 shows a big difference for the Eligible 2s in the proportion on schedule for at least four of the five ASQ domains between those in the top quartile of the home learning environment scale who undertake the most frequent home learning activities (60%) and the other three quartiles (31 to 37%). There is also significant difference for the Comparator 3s between those in the top two quartiles (59%) and those in the bottom quartile (40%).

For level of parental education, and whether the parent has a long-term condition or not, there is no clear pattern of outcomes for the Eligible 2s, while for the Comparator 3s, there is a large difference in the proportion on schedule for at least four domains between those with a degree (60%) and those with no or only lower school qualifications (31%). Similarly, there is a large difference in the proportion

²⁸ Because of the small numbers of children living in a home where English is not the main language, we should not read too much into such marginally significant results.

largely on schedule depending on whether the parent has a long-term health condition (36%) or not (55%).

Figure 26: On schedule for at least four ASQ domains, by home learning environment, highest level of parental education and whether the respondent has a long-term health condition or illness, Eligible 2s and Comparator 3s, Phase 3



Base: All children (with responses to both parent questionnaire and keyworker observations, Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

The lack of a pattern for the Eligible 2s suggests that the factors which may be associated with low income and lead to their eligibility for funded ELC at age two are not compounding to make outcomes worse for them. This is further evidenced when we note that other factors, such as employment status and area deprivation also showed no clear patterns and showed no association when included in the model. Outcomes for the Eligible 2s, however, may be improved through the interventions that encourage children and parents to take part in activities together, such as those outlined in the home learning environment scale. For the nationally representative Comparator 3s, the large differences depending on level of education, parental illness, and other factors such as income, which only do not appear in the model because of their associations with factors that do, highlights the need for services for parents and children which will help close these gaps. The provision of ELC for the Eligible 2s and the increase in provision for all children from the age of three may help reduce these inequalities. The evidence gathered for the next three phases of the Scottish Study of Early Learning and Childcare will help to assess this.

Two further models were run to look at the drivers of having close to average scores on the SDQ total difficulties scale. These are summarised in Table 5, and shown in more detail in Appendix D Tables D5 and D6.

For the Eligible 2s, the model explained almost none of the variation between children. The only marginally significant driver of achieving a close to average score was not having a long-term health condition²⁹. A larger sample would likely have helped to identify other drivers of close to average scores, although, as with the ASQ models, it appears that because the Eligible 2s are a more homogenous group in terms of socio-demographics than the Comparator 3s, it is harder to explain the differences in outcomes between children than for the nationally representative Comparator 3s.

For the Comparator 3s, five key drivers of a close to average score were identified: being a girl, living in a non-deprived area, being white, living in an ordered / non-chaotic home, and receiving more than 18 hours a week of childcare, both formal and informal (i.e. more than just the statutory entitlement of ELC). These are explored further in Figures 27 and 28.

Table 5: Key drivers of demonstrating close to average total difficulties score on the Strengths and Difficulties Questionnaire, Eligible 2s and Comparator 3s, Phase 3

	Significance	
	Eligible 2s	Comparator 3s
Female		++
No long-term health condition	+	
White ethnic group		++
Least deprived 60% of areas		+++
Most ordered / least chaotic two thirds of homes		++
More than 18 hours of childcare (formal and informal)		++
<i>Unweighted base</i>	253	518
<i>Base: All children (with responses to both parent questionnaire and keyworker observations, Phase 3, Eligible 2s unweighted, Comparator 3s weighted)</i>		

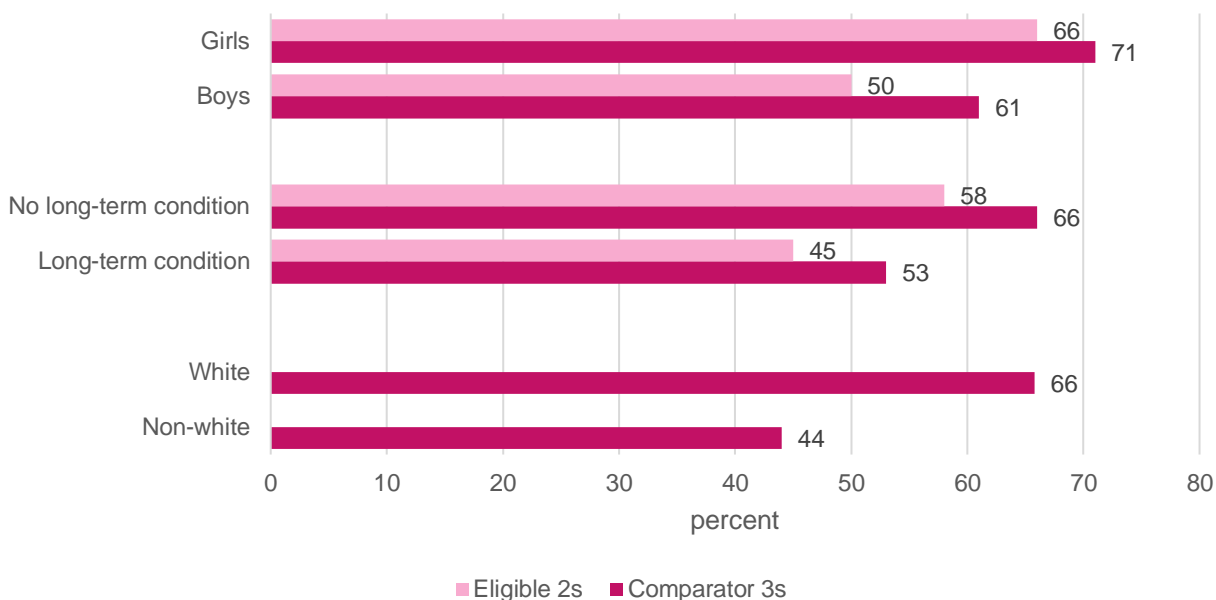
+++ highly significant, ++ moderately significant, + marginally significant

Figure 27 shows that girls were more likely than boys to score close to average on the SDQ total difficulties scale among both the Eligible 2s and Comparator 3s: 66% of girls among the Eligible 2s and 71% of girls among the Comparator 3s scored close to average compared with 50% of boys and 61% of boys respectively.

²⁹ Being a girl was significant when the regression model used only data from the keyworker observation, but not when the sample size was reduced in order to take into account responses to the parent questionnaire. Figure 27 uses keyworker data only for boys and girls.

Children with no long-term health condition were more likely to score close to average: 58% of the Eligible 2s and 66% of the Comparator 3s compared with 45% of the Eligible 2s who had a long-term condition and 53% of the Comparator 3s with a condition. Two thirds of children of white ethnic origin among the Comparator 3s achieved close to average compared with 44% of children of non-white origin.

Figure 27: Close to average SDQ total difficulties score, by sex, whether child has a long-term condition and ethnicity, Eligible 2s and Comparator 3s, Phase 3



Base: All children (with responses to keyworker observations (girls / boys), and with responses to both parent questionnaire and keyworker observations (long-term conditions and language), Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Ethnicity not shown for Eligible 2s due to small sample size

Figure 28 shows that among the Comparator 3s, those in the least deprived areas were more likely to be assessed as close to average on the SDQ total difficulties scale: 72% of those in the least deprived two quintiles, compared with 60-62% in the most deprived two quintiles.

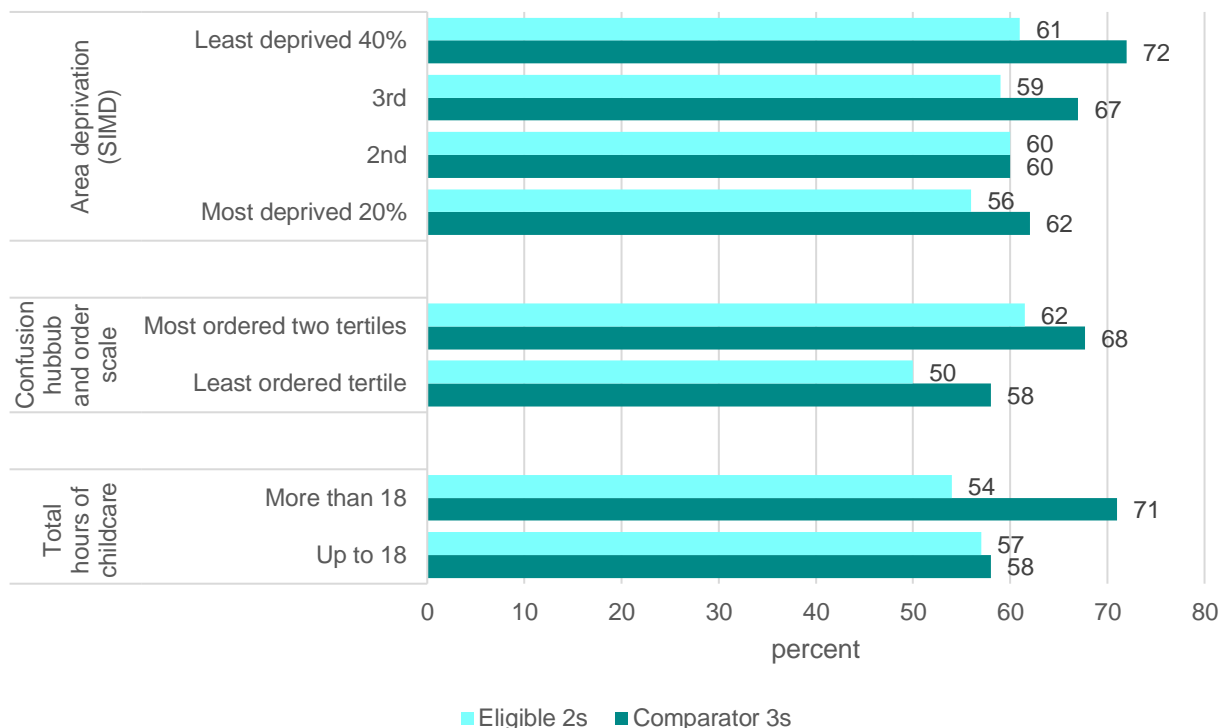
For both the Eligible 2s and Comparator 3s, living in a more ordered home was associated with a close to average score: 62% of the Eligible 2s and 68% of the Comparator 3s living in the most well-ordered homes achieved a close to average score on the SDQ total difficulties scale, compared with 50% of the Eligible 2s and 58% of the Comparator 3s living in more disorganised homes³⁰.

For the Comparator 3s, more than 18 hours a week of childcare was associated with close to average scores. This included the funded ELC placement and any additional formal or informal care. Seventy-one percent of the Comparator 3s receiving more than 18 hours a week childcare were assessed as close to average

³⁰ The most well-ordered homes were those in the top two thirds of the scale created from four items of the Confusion, Hubbub and Order Scale.

on the total difficulties scale, compared with 58% of those receiving 18 hours or fewer each week. Whether this translates into better outcomes for children receiving 25 hours or more of funded ELC each week remains to be seen. There was no association between hours of childcare and total difficulties score for the Eligible 2s.

Figure 28: Close to average SDQ total difficulties score, by home learning environment, highest level of parental education and whether the respondent has a long-term health condition or illness, Eligible 2s and Comparator 3s, Phase 3



Base: All children (with responses to keyworker observations (SIMD), and with responses to both parent questionnaire and keyworker observations (confusion, hubbub and order scale and hours of childcare), Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Parent outcomes

Economic activity

One of the principal aims of the expansion of ELC provision is to increase the opportunities parents have to work, study or train. Parents and carers were asked about their current economic activity and about any effect the current provision of childcare had on it. The baseline data reported here will be compared with data collected after the increase in funded hours has been rolled out to all three- and four-year-olds, to allow an assessment of the impact of the expansion programme on this aim.

Figures for the parents of the Eligible 2s may differ from those reported earlier. The figures examining how things had changed for the Eligible 2s were based on those who had completed a parent questionnaire at both Phase 1 and Phase 3 of the study. The figures reported in this section are for those who had completed a parent questionnaire at Phase 3. At Phase 1 the keyworker observations only were completed for some of this group.

It is worth keeping in mind when reading this analysis that most of the respondents were female (91% of the Eligible 2s and 93% of the Comparator 3s). While this does not affect any comparisons between the two groups, levels of employment and attitudes towards childcare will be more reflective of women than of men.

Parents were asked whether they had ever had a job, either as an employee or self-employed. The majority of parents in both groups had been employed at one point, with those in the Comparator 3s (97%) more likely to have been employed than those in the Eligible 2s (80%). Among the Eligible 2s those in two parent households (87%) were more likely to have been employed in the past than single parents (75%).

Parents were then asked about their economic activity in the past seven days. Responses are summarised in Table 6.

Table 6: Parent's economic activity

What were you doing last week, that is the seven days ending last Sunday?	Eligible 2s	Comparator 3s
	%	%
Working 30 or more hours a week (including if currently on leave or sick)	9	28
Working fewer than 30 hours a week (including if currently on leave or sick)	29	41
On maternity/parental leave from an employer	2	7
Looking after home or family	63	53
Waiting to take up paid work already obtained	2	0
Out of work and looking for a job	8	4
Out of work, because of long-term sickness or disability	10	3
On a Government training or employment scheme	-	-
In full-time education (including on vacation)	5	3
In part-time education (including on vacation)	4	3
Wholly retired	1	-
Not in paid work for some other reason	11	4
<i>Unweighted base</i>	262	563

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

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

Parents (mostly mothers) in the Comparator 3s group were much more likely to have been working in the past 7 days than those in the Eligible 2s. Two thirds (69%) of parents of the Comparator 3s had been working, including 28% full-time and 41% part-time, compared with 38% of the Eligible 2s (9% full-time and 29% part-time). Looking after the home or family was reported more often by the Eligible 2s (63% compared with 53% of the Comparator 3s), as were most of the other reasons for not being in employment.

Table 7 shows that, of those who described themselves as looking after their home or family, a higher proportion of the Comparator 3s (62%) reported combining this with employment than the Eligible 2s (27%). However, when we look at this the other way around the proportions of those who are in employment who also reported looking after the home or family are fairly similar in the two groups: 34% of the Comparator 3s and 25% of the Eligible 2s who were working full-time reported looking after the home or family, and 51% of the Comparator 3s and 46% of the Eligible 2s who were working part-time also reported looking after the home or

family. Small proportions in both groups also combined work and / or looking after the home or family with education.

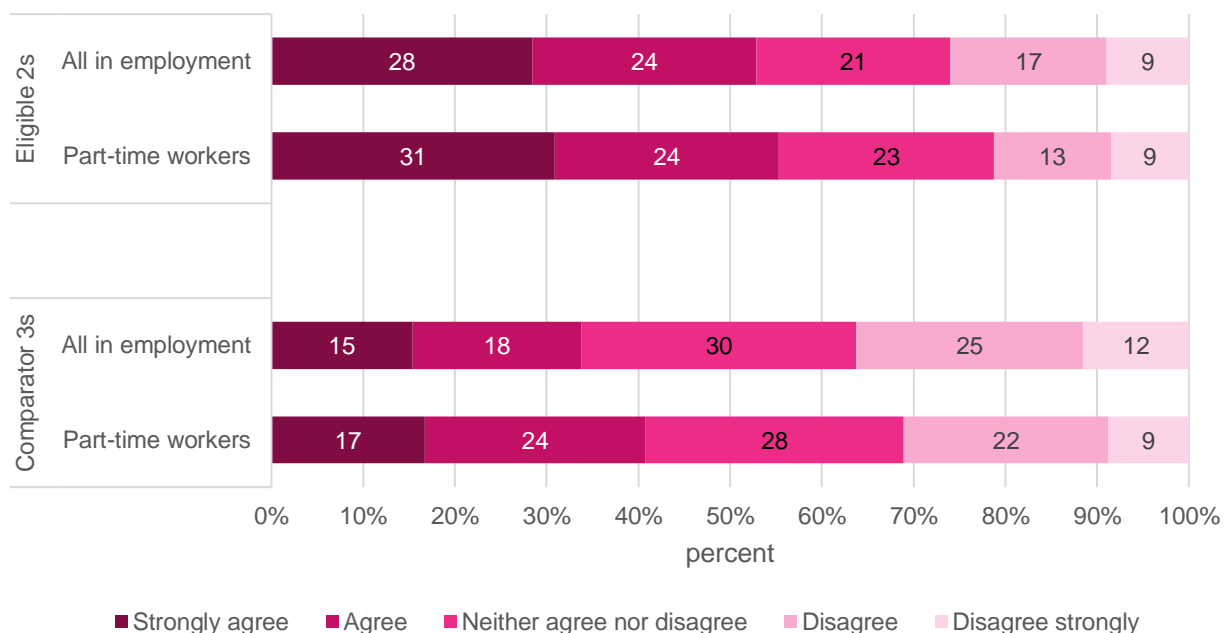
Table 7: Multiple economic activities

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
	%	%	%	%	
Eligible 2s	69	4	24	3	166
Comparator 3s	34	4	58	4	296
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
	%	%	%	%	
Eligible 2s	71	4	21	4	24
Comparator 3s	66	-	28	5	164
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
	%	%	%	%	
Eligible 2s	46	8	42	4	76
Comparator 3s	48	1	49	2	223

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 questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Parents who were in employment were asked if they would work more if they could afford good quality childcare. Figure 29 shows that those in the Eligible 2s group were more likely to agree (53% in total – 28% strongly agree and 24% agree) than those in the Comparator 3s (34% in total – 15% strongly agree and 18% agree). These numbers were similar when only part-time workers were considered.

Figure 29: Whether respondent would work more if they could afford childcare, Eligible 2s and Comparator 3s, in employment and in part-time employment, Phase 3



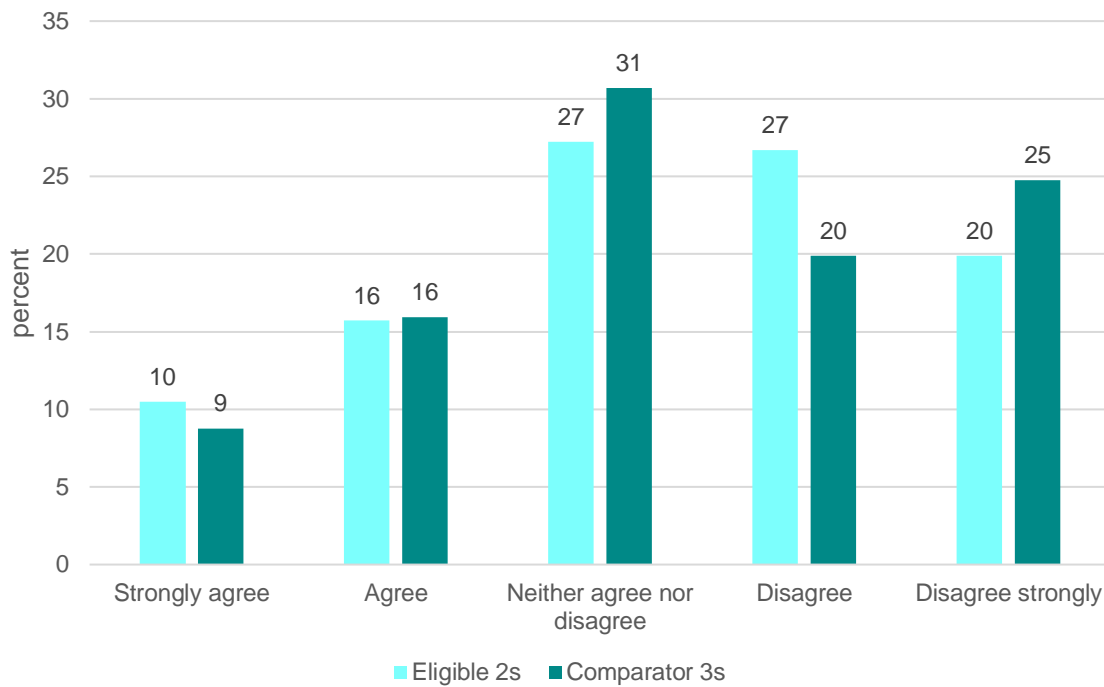
Base: All respondents in employment (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Among the Comparator 3s, agreement was more likely for those on lower incomes. More than half of the working parents in the lowest income quintile (53%) agreed or strongly agreed that they would work more if they could afford good quality childcare, compared with a quarter (26%) in the top three income quintiles (see Appendix C Table C19).

A similar question was asked of those who were not currently in work or training, namely whether they were not working because of a lack of childcare. The responses are summarised in Figure 30.

Results were broadly similar across the two groups, with more respondents disagreeing that a lack of affordable, convenient and good quality childcare was one of the main reasons they were not working. Almost half of the Eligible 2s (47%) and Comparator 3s (45%) disagreed in total, while a quarter agreed (26% of the Eligible 2s and 25% of the Comparator 3s).

Figure 30: Whether respondent is not working because of a lack of affordable, good quality childcare, Eligible 2s and Comparator 3s, Phase 3



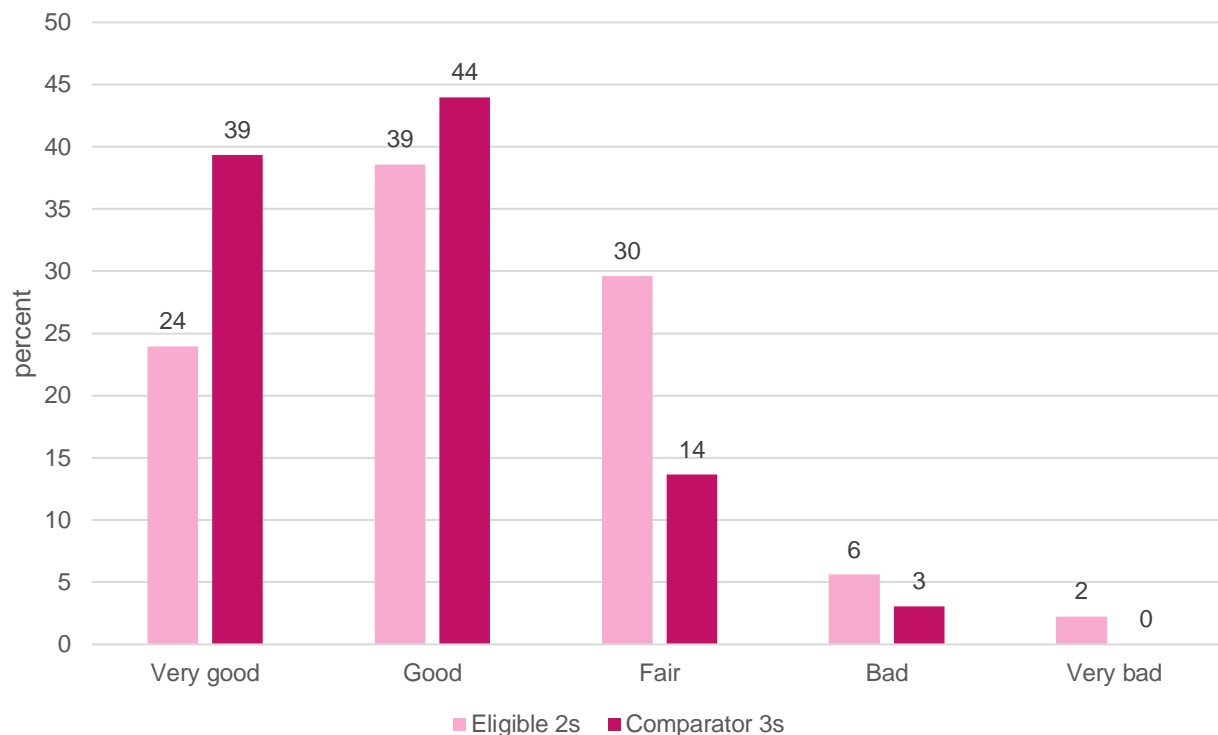
Base: All respondents not in employment (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Parental health and wellbeing

General health

As well as being asked about their child’s health, parents were asked to assess their own health. The majority of parents in both groups reported being in good or very good health, although the proportion doing so among the Comparator 3s (83%) was higher than that among the Eligible 2s (63%). One in twelve (8%) parents of the Eligible 2s rated their health as bad or very bad. The full results are shown in Figure 31.

Figure 31: General health, Eligible 2s and Comparator 3s, Phase 3



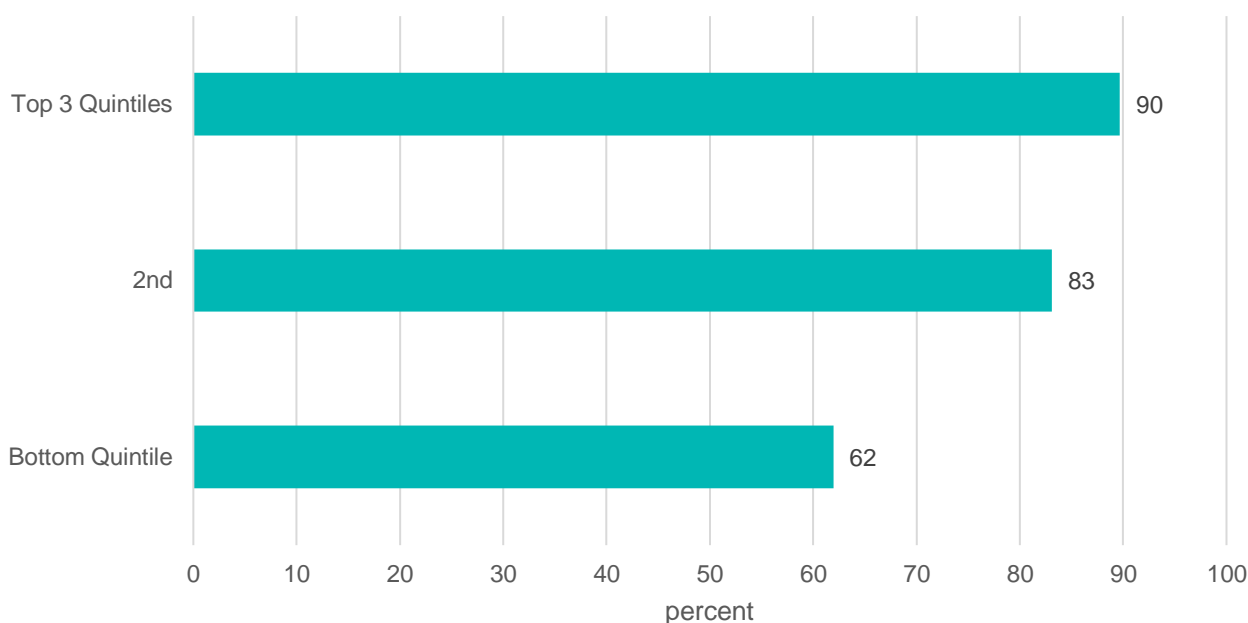
Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Among the Comparator 3s, those in two parent households, those on higher incomes and those with a higher level of education were all more likely to rate their health as good or very good. Similar patterns could be seen for the Eligible 2s, although they were not quite as strong. Figure 32 shows that 90% of the Comparator 3s parents in the top three income quintiles rated their own health as good or very good, compared with 62% for those in the bottom income quintile.

Figures broken down by level of education and household type are shown in Tables C20 and C21 in Appendix C. Nine out of ten (91%) parents with a degree among the Comparator 3s rated their own health as good or very good, decreasing with decreasing levels of education to 71% of parents with only lower school qualifications. For the Eligible 2s, 74% of parents with a degree rated their health as good or very good, while between 53% and 63% rated their health good or very good among those with lower levels of education.

Single parents were less likely to describe their health as good or very good than couple parents, and this difference was again more marked among the Comparator 3s: 86% of couple parents in the Comparator 3s group rated their health as good or very good, compared with 71% of single parents who did so. The equivalent figures for the Eligible 2s were 66% and 60% respectively.

Figure 32: Proportion in good or very good health, by equivalised household income, Comparator 3s, Phase 3



Base: All respondents (parent questionnaire Phase 3, Comparator 3s weighted)

Parents were also asked if they had any physical or mental health conditions lasting or expected to last for 12 months or more, and whether this limited their activities. Parents in the Eligible 2s group were more likely to have a longstanding condition (41%, including 37% with a limiting longstanding condition) than those in the Comparator 3s (20%, including 14% with a limiting condition). For both groups, the most common way in which they were affected by the condition was with mental health, social, emotional or behavioural issues (75% of the Eligible 2s with a condition and 64% of the Comparator 3s with a condition). Other ways in which parents were affected by the condition are listed in Table C22 of Appendix C.

Those in single parent households were more likely to have a longstanding illness than those in couple parent households, 29% of single parents in the Comparator 3s had a longstanding illness compared with 18% of couple parents, while for the Eligible 2s these figures were 43% and 38% respectively. As with general health, the proportion with a longstanding condition among the Comparator 3s declined with increasing levels of income and education (Appendix C Tables C23, C24 and C25).

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 (SWEMWBS), 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 in the Eligible 2s was 23.5, while for the Comparator 3s, this was slightly higher at 24.4.

Among the Comparator 3s, those in two parent households and those on higher incomes tended to show higher average levels of mental wellbeing, as shown in Table 8. For the Eligible 2s there was little difference between parents in one- or two-parent households.

Table 8: Mean SWEMWBS scores, by household type (Eligible 2s and Comparator 3s) and equivalised household income (Comparator 3s), Phase 3

	Eligible 2s	Comparator 3s	<i>Unweighted Base – Eligible 2s</i>	<i>Unweighted Base – Comparator 3s</i>
All parents	23.5	24.4	264	555
Household type				
Single parent	23.3	23.5	151	89
Two parent	23.8	24.6	113	465
Equivalised income				
Bottom quintile		23.8		98
2nd		23.7		110
Top 3 quintiles		24.9		305
<i>Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)</i>				

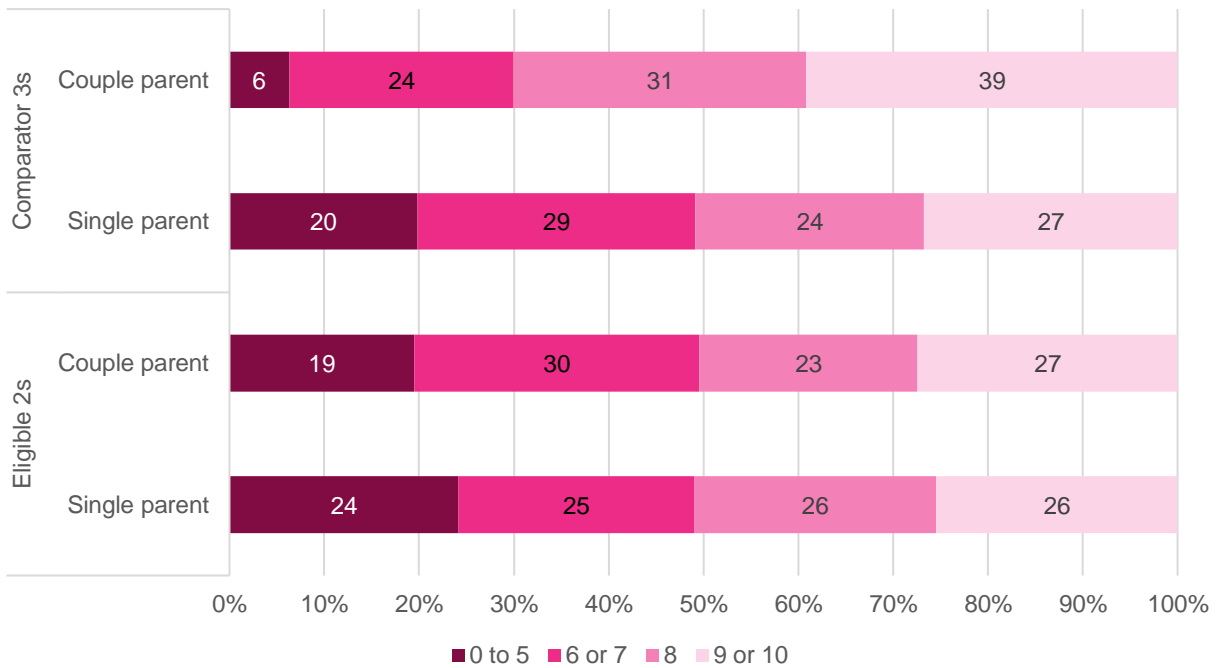
In addition to the SWEMWBS Scale, parents were asked to rate their life satisfaction on a scale of 0 to 10, with 0 being extremely dissatisfied and 10 being extremely satisfied. Table 9 shows that, on this scale as well, those in the Comparator 3s group were on average slightly more satisfied (7.8) than those in the Eligible 2s (7.2). Single parents in the Comparator 3s were on average less satisfied (7.1) than couple parents (8.0), though in the Eligible 2s both groups had the same average score (7.2). As with SWEMWBS, life satisfaction tended to increase with income among the Comparator 3s, from an average of 7.3 in the bottom income quintile to 8.1 in the top three quintiles.

Table 9: Mean life satisfaction score, by household type (Eligible 2s and Comparator 3s) and equivalised income (Comparator 3s), Phase 3

	Eligible 2s	Comparator 3s	<i>Unweighted Base – Eligible 2s</i>	<i>Unweighted Base – Comparator 3s</i>
All parents	7.2	7.8	269	565
Household type				
Single parent	7.2	7.1	154	90
Two parent	7.2	8.0	115	474
Equivalised income				
Bottom quintile		7.3		98
2nd		7.7		111
Top 3 quintiles		8.1		310
<i>Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)</i>				

Figure 33 shows the banded life satisfactions scores for the Eligible 2s and Comparator 3s by household composition. Single parents among the Comparator 3s were more likely to report not being satisfied with their lives (a score of 0 to 5) (20% of single parents, compared with 6% of couple parents). Consequently those in two parent households were more likely to be very satisfied with their lives (a score of 9 or 10) (39% of couple parents, compared with 27% of single parents). There was no notable difference among the Eligible 2s between couple parents and single parents in terms of life satisfaction, with levels similar to those for single parents among the Comparator 3s.

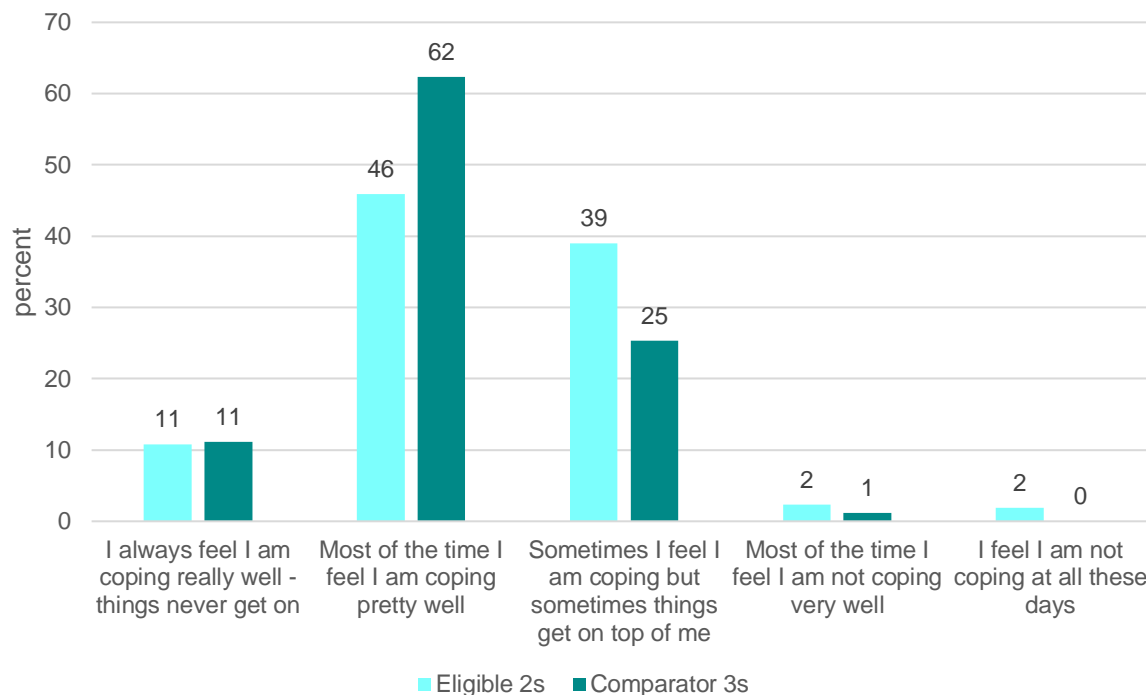
Figure 33: Banded life satisfaction, by household type, Eligible 2s and Comparator 3s, Phase 3



Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Parents were asked how they felt they were coping as a parent. Figure 34 shows the responses of both groups. Parents in the Comparator 3s group were more likely to say they were coping well most or all of the time (73% compared with 57% of the Eligible 2s). There were no clear differences between socio-demographic subgroups in either of the main groups in terms of the proportion coping well.

Figure 34: How coping as a parent, Eligible 2s and Comparator 3s, Phase 3

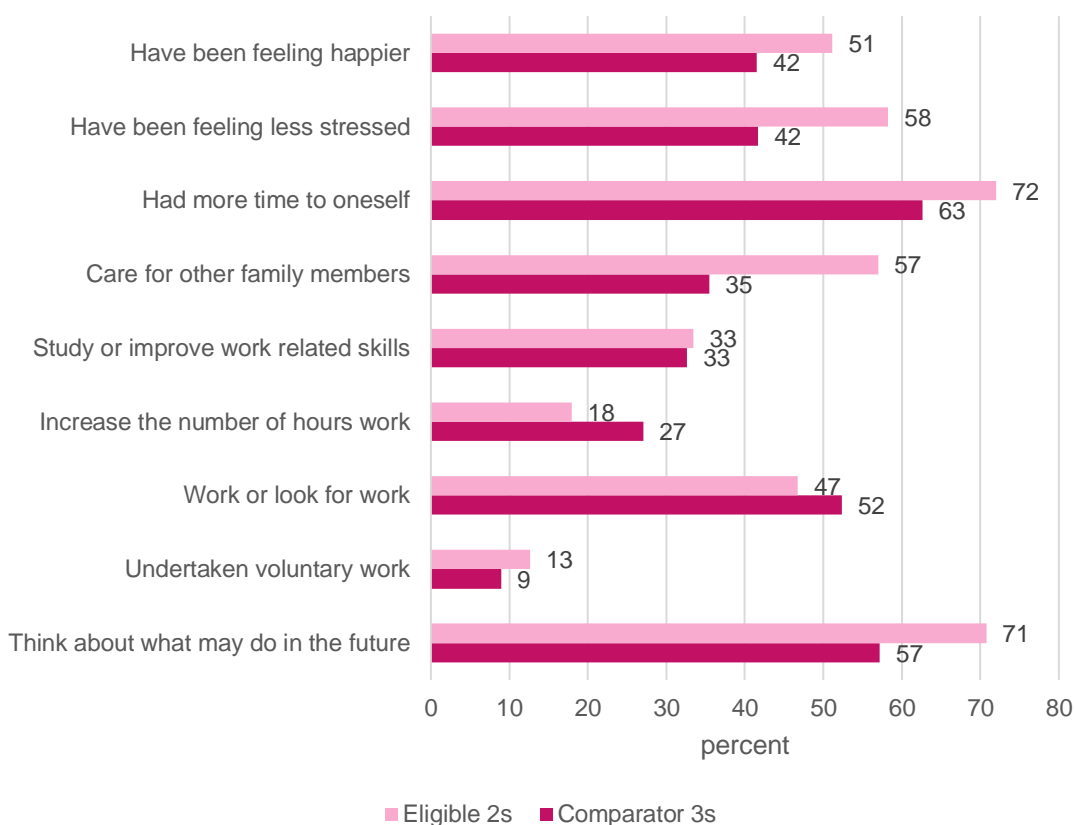


Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Parents were also asked a series of questions on the effect that access to childcare had on activities they had undertaken and on their general wellbeing. While the general picture in much of the analysis included in this report has shown that things tend to have improved for the Eligible 2s and their parents between Phase 1 and Phase 3, there is still some way to go in terms of closing the gap with the nationally representative sample of Comparator 3s. However, this series of questions shows some very positive findings for the parents of the Eligible 2s in terms of what parents have been able to do and how they have been feeling because their child is in nursery.

As can be seen in Figure 35, parents in the Eligible 2s group were more likely than those in the Comparator 3s group to agree with all of the statements with the exception of those to do with study or paid work. They were more likely to say they had been feeling happier as a result of having their child in nursery (51% compared with 42% of the Comparator 3s), that they had been feeling less stressed (58% compared with 42% of the Comparator 3s), that they had more time to themselves (72% compared with 63%) and that they were able to think about what they may do in the future (71% compared with 57%). The largest difference between the two groups was in the proportion who had been able to care for other family members (57% of the Eligible 2s compared with 35% of the Comparator 3s).

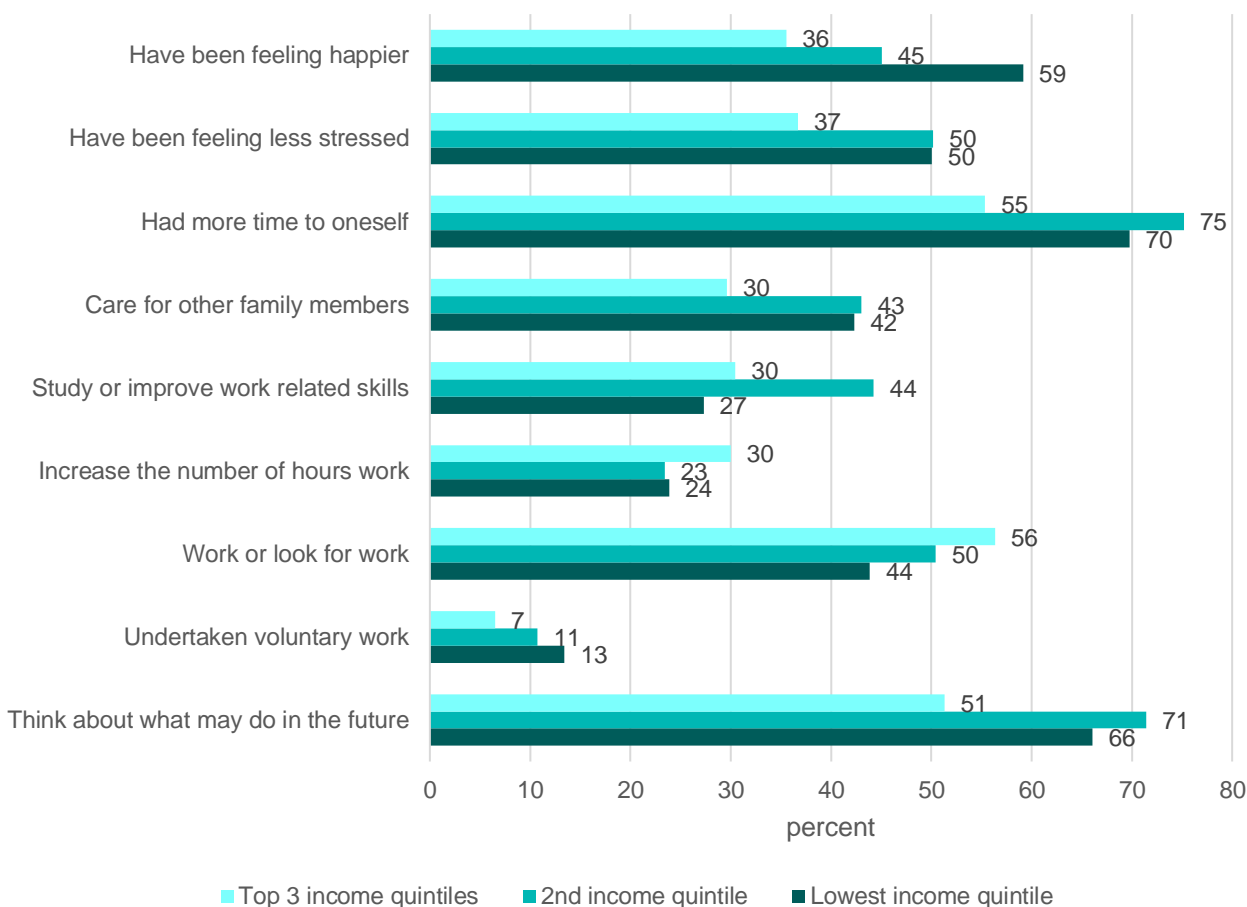
Figure 35: Proportion agreeing with activities done/perceived change in feelings because child is in nursery, Eligible 2s and Comparator 3s, Phase 3



Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Figure 36 provides a breakdown of responses to each of the statements by household composition for the Comparator 3s. For the questions about thoughts and feelings, there tended to be a significant difference between those in the top three income quintiles and those in the bottom two, with those on lower incomes benefitting more from having their child in nursery. For example, half (50%) of those in the bottom two income quintiles agreed they were feeling less stressed, compared with 37% of those in the top three quintiles. More than half (59%) of those in the bottom quintile had been feeling happier, compared with 36% of those in the top three quintiles. Three quarters (70-75%) of those in the bottom two quintiles had more time to themselves, compared with 55% of those in the top three quintiles. And two thirds (66-71%) of those in the bottom two quintiles had been able to think about what they may do in the future, compared with 51% of those in the top three quintiles. There was also a significant difference in the proportion who agreed they had been able to care for other family members (42-43% in the bottom two quintiles compared with 30% in the top three). Differences in the work related questions were not significant.

Figure 36: Proportion agreeing with activities done / perceived change in feelings because child is in nursery, by equivalised household income, Comparator 3s, Phase 3



Base: All respondents (parent questionnaire Phase 3, Comparator 3s weighted)

Tables C26 to C29 in Appendix D show the same information broken down by area deprivation, highest level of education, one- or two-parent household and by the total difficulties score of the Strengths and Difficulties Questionnaire. In general, the pattern for the Comparator 3s was similar to that for income, in that those with lower levels of education, in single parent households and living in more deprived areas appeared to benefit more in terms of feeling happier, less stressed, having more time to themselves and being more able to think about the future, although there tended to be fewer significant differences. Differences with respect to the SDQ total difficulties score tended to be small and not significant, with the only noticeable difference being for the Comparator 3s in the proportion agreeing that they had been able to think about what they may do in the future, with those with a child with a high or very high score tending to benefit more than those with children who had a close to average score.

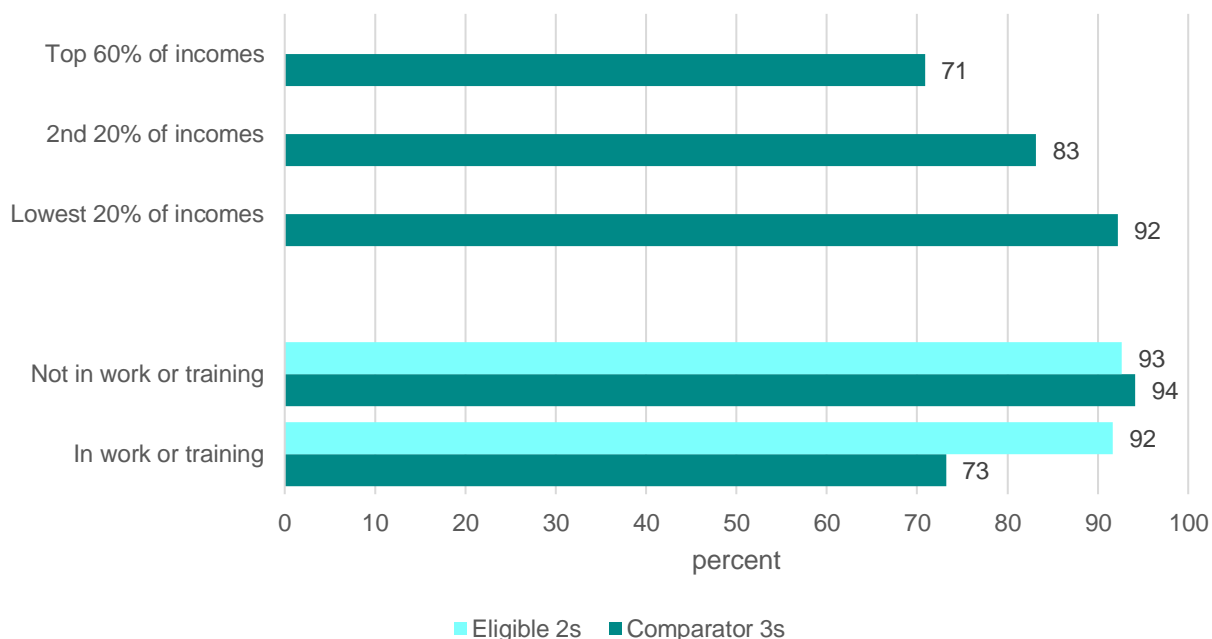
Use of ELC

Formal ELC provision

Funding for the child's ELC provision was covered in both the parent and keyworker questionnaires. The parent questionnaire asked whether all of the child's time at the setting was paid for, whereas the keyworker questionnaire included more detailed questions on the number of registered hours, and whether these were government funded, local authority funded (referred) or self-funded. As with the previous section, the figures for the Eligible 2s are unweighted and the figures for the Comparator 3s are weighted.

Most parents reported that the full costs of the time their child spent at the setting was met by the government, although this proportion was higher for the Eligible 2s (92%, compared with 78% of the Comparator 3s). For the Comparator 3s, clear relationships were evident between whether the child's time at the setting was funded by the government and a range of demographic factors. Nearly all (94%) of respondents in the Comparator 3s group who were not in work or training had full funding through the statutory entitlement, compared with 73% of those who were in work or training. Those on lower incomes were more likely to have all the time spent by the child at the setting funded through their statutory entitlement. This was the case for 92% of those in the bottom income quintile, compared with 83% in the second quintile and 71% of those with higher incomes (see Figure 37). Similar patterns could also be seen by area deprivation (Table C30 in Appendix D). In contrast, there was no clear relationship in the Eligible 2s group between deprivation and funding through the statutory entitlement, and the proportion of those who were in employment and receiving full funding (92%) was almost identical to those who were not in employment (93%).

Figure 37: Proportion of children for whom full costs of time child spends at nursery are met by the government, by equivalised household income (Comparator 3s) and employment status (Eligible 2s and Comparator 3s), Phase 3



Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

The vast majority of parents took their full allocation of statutory funding³¹ at one setting: 90% of the Eligible 2s and 82% of the Comparator 3s. The Eligible 2s were registered on average for a higher number of funded hours at the nursery (19.0) than the Comparator 3s (16.7)³². When unfunded hours were included, the difference between the groups was much smaller (19.3 hours for the Eligible 2s and 18.3 for the Comparator 3s). Ten percent of the Eligible 2s and 18% of the Comparator 3s were registered for fewer than 15 funded hours per week, while 33% of the Eligible 2s and 26% of the Comparator 3s were registered for more than 16.25 hours³³.

³¹ 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.

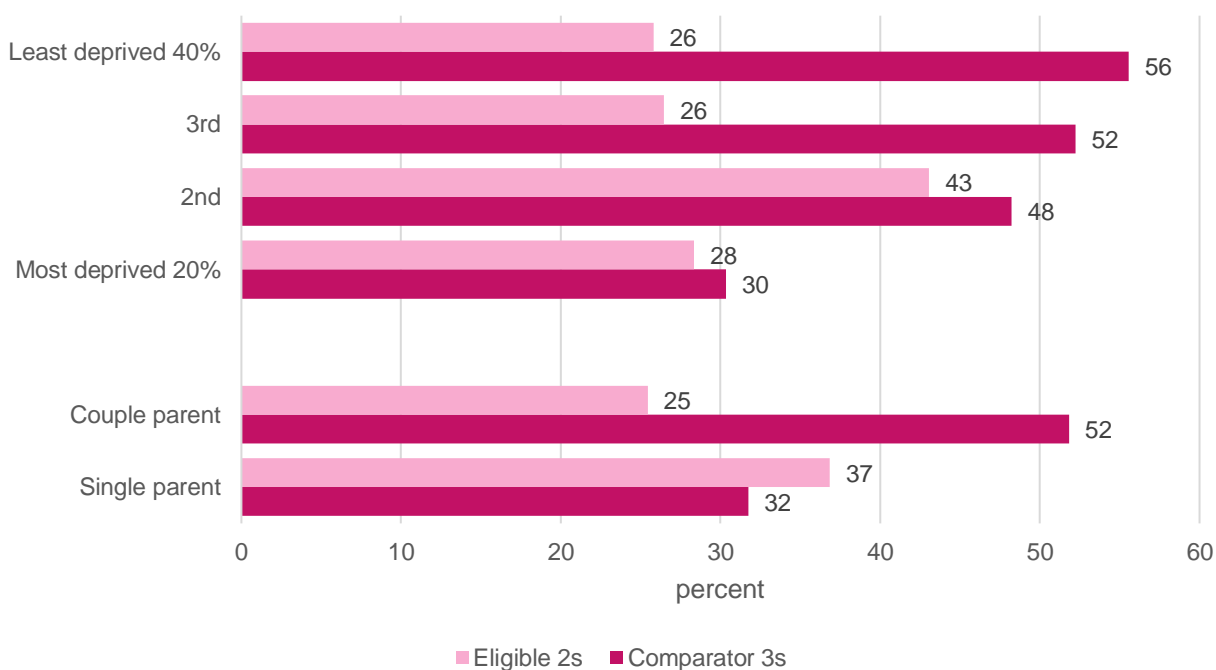
³² This is not a fair comparison, as a number of children, mostly among the Eligible 2s, were receiving 30 hours a week of government-funded ELC. The Eligible 2s sample included those who were receiving 600 hours a year of funded ELC when they were two. Around one in five of the Eligible 2s had either moved setting in order to receive an increase in hours or were receiving the increased hours at the same setting. These children were included in the sample for Phase 3 as it was important to see how they and their families had progressed after a year of 600 hours of funded ELC. The additional three months of increased hours is not expected to affect the findings. A much smaller number of the Comparator 3s were also receiving the increased entitlement, because the setting they attended had started providing the increased hours after the sample was drawn.

³³ 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.

Additional childcare

More of those in the Comparator 3s group than the Eligible 2s got help from a provider other than the nursery they were registered at for the survey. For the former, around half (49%) got help with childcare on a regular basis from another provider compared with a third (32%) of parents/carers of the Eligible 2s. There was no clear relationship across the two groups between household composition and access to additional childcare. Single parents in the Comparator 3s (32%) were less likely to receive help with childcare from another provider than couple parents (52%), but the reverse was the case for the Eligible 2s (single parents - 37%, couple parents - 25%). Those in more deprived areas among the Comparator 3s group were less likely to have accessed additional childcare than those in less deprived areas, while there was no clear linear relationship for the Eligible 2s group (see Figure 38).

Figure 38: Whether currently get help with childcare from another provider, by area deprivation and single/couple households, Eligible 2s and Comparator 3s Phase 3



Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table 10 lists the other types of childcare used, with some differences evident between the Eligible 2s and Comparator 3s. As mentioned above those in the Eligible 2s group were less likely to have accessed additional childcare than those in the Comparator 3s – three quarters (73%) of the former responded that they had accessed none of the additional types of childcare listed compared with 53% of the Comparator 3s³⁴. Those in the Comparator 3s group were also more likely to have

³⁴ Figures differ from those previously mentioned as some parents said they used childcare but did not mention any specific type of childcare.

used multiple forms of additional childcare: 18% had used two or more compared with 8% of the Eligible 2s.

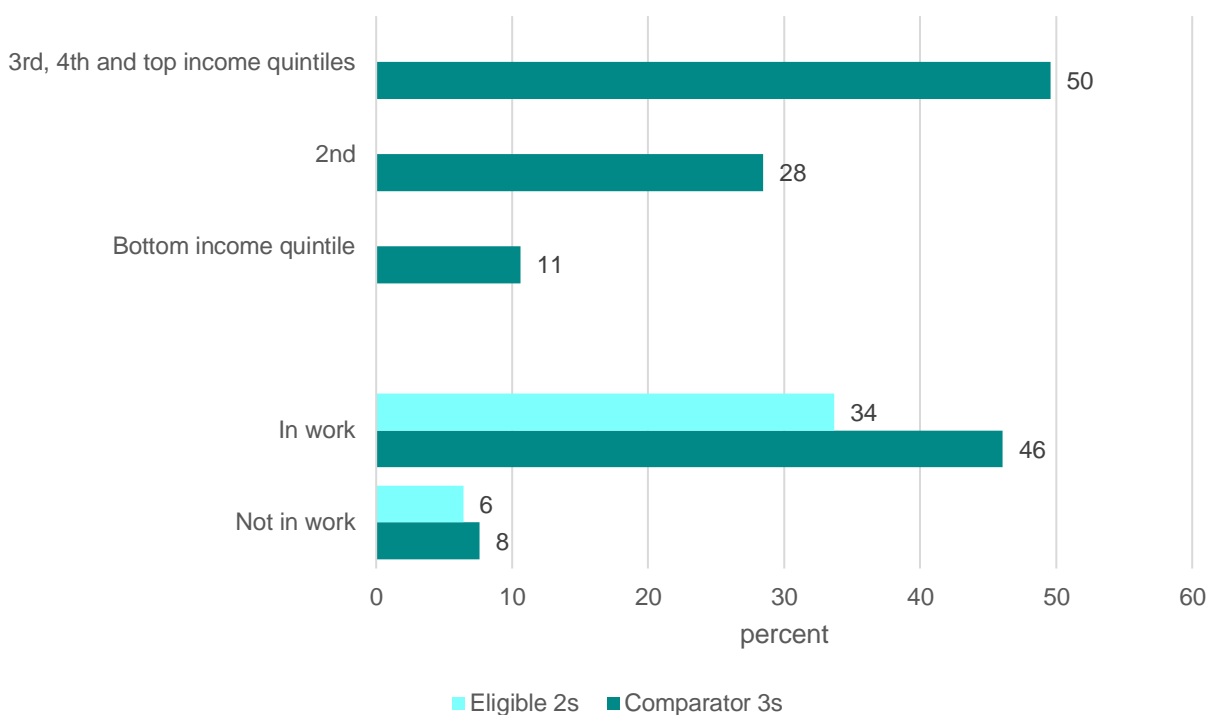
Table 10: Other types of childcare used

	Eligible 2s	Comparator 3s
	%	%
Private or workplace crèche, nursery, playgroup or pre-school	3	7
Local Authority crèche, nursery, playgroup or pre-school	3	5
Community or voluntary crèche, nursery, playgroup or pre-school	0	1
Childminder	4	7
Grandparents	17	36
Ex-spouse	5	3
Another relative	3	3
Nanny or babysitter	-	2
Friend or neighbour	1	1
Another person	0	1
None of the above	73	53
<i>Unweighted base</i>	266	560

Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Of the other types of childcare used, grandparents were the most popular, with 36% of parents of the Comparator 3s and 17% of parents of the Eligible 2s having used them. The Comparator 3s were slightly more likely to mention formal types of childcare than the Eligible 2s, although, with the exception of grandparents, the proportions using each type were low for both groups for both formal and informal childcare. Those in work or training were much more likely to use grandparents for childcare than those who were not, and this was the case for both groups. Almost half (46%) of parents of the Comparator 3s in work or training had used grandparents compared with only 8% who were not in work or training, with the equivalent figures being 34% and 6% for the Eligible 2s. Similar patterns could be seen for income, with half (50%) of the Comparator 3s households in the top three income quintiles using grandparents for childcare, compared with 11% in the bottom income quintile (see Figure 39).

Figure 39: Whether currently uses grandparents for childcare, by income (Comparator 3s) and employment status (Eligible 2s and Comparator 3s), Phase 3



Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

The mean number of funded hours outside the nursery was the same for each group – 1.2 hours for both the Eligible 2s and the Comparator 3s. It is in the amount of unfunded additional support that a difference is evident, with those in the Comparator 3s accessing a mean of 7.6 hours of unfunded additional hours per week compared with the Eligible 2s who were accessing a mean of 3.7 hours. Much of this difference can be explained by employment status. In both groups those in work or training accessed, in general, more unfunded hours than those who were not. For the Comparator 3s those in work or training accessed a mean of 9.3 hours of unfunded childcare compared with 2.4 for those who were not in work or training, with the figures for Eligible 2s being 7.9 and 1.0 hours respectively.

Combining data from both the keyworker and parent questionnaires, we can identify different combinations of settings and funding used for childcare³⁵. Nearly half (46%) of the Comparator 3s used only the funded ELC at a single setting, while two thirds (66%) of the Eligible 2s did the same. Around a quarter (23%) of the Comparator 3s and 17% of the Eligible 2s used a combination of funded ELC at a single setting and informal childcare. Much smaller proportions used other combinations (see Table 11).

³⁵ Table 11 includes data only for those with a definite number of hours provided for each combination of childcare. Figures may therefore differ from those reported elsewhere because of the reduced sample size.

Table 11: Combinations of types of childcare used and types of funding

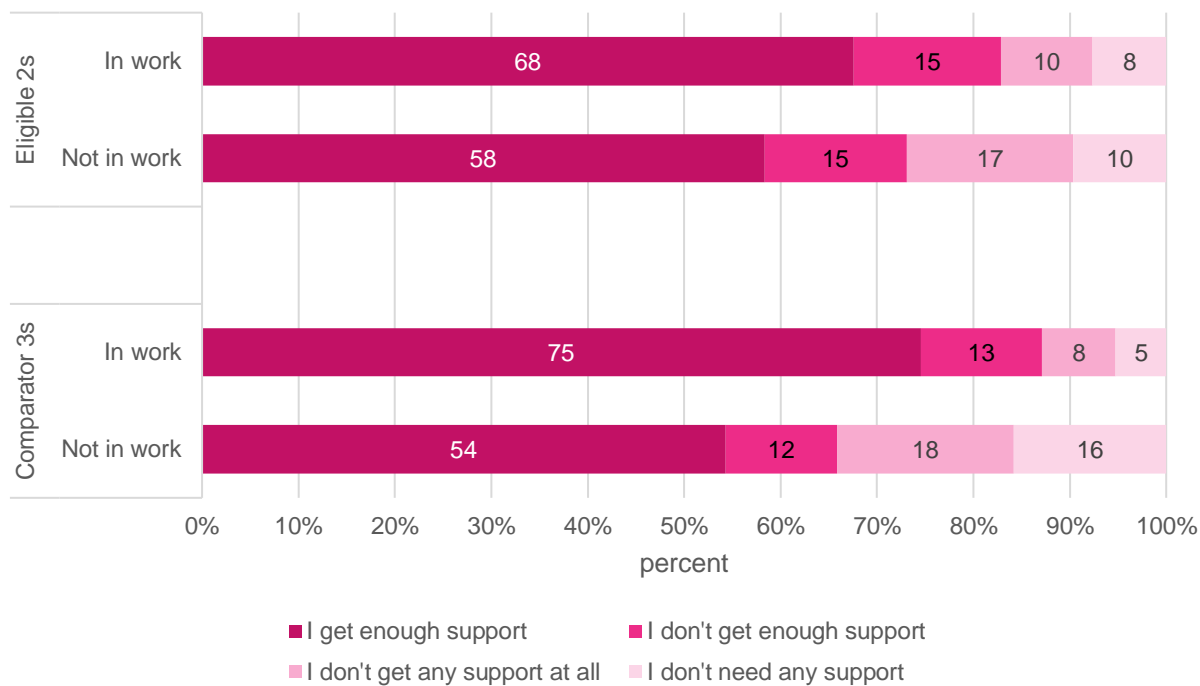
	Eligible 2s	Comparator 3s
	%	%
Funded formal ELC only - single setting	66	46
Funded formal ELC only - multiple settings	6	2
Funded and unfunded formal ELC - single setting	3	6
Funded formal ELC - single setting + informal	17	23
Funded formal ELC - multiple settings + informal	5	4
Funded and unfunded - single setting + informal	-	6
Funded and unfunded formal ELC only - multiple settings	3	4
Funded and unfunded formal ELC - multiple settings + informal	2	10
<i>Unweighted base</i>	120	318

Base: All children (parent questionnaire and keyworker questionnaire with a definite number of hours provided for different types of childcare, Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

The majority of respondents among both the Eligible 2s (62%) and the Comparator 3s (70%) felt that they got enough support with childcare from family or friends living outside of the household. Those in the Eligible 2s group were slightly more likely than the Comparator 3s to say that they did not get enough support or did not get any support at all (29% compared with 22% of the Comparator 3s), while a small proportion of both groups said that they did not need any support (9% of the Eligible 2s and 8% of the Comparator 3s).

Figure 40 shows that for the Comparator 3s, those in employment were more likely to feel that they had enough support (75%) than those not in employment (54%). They were also less likely to say that they did not need any support (5%) than those not in employment (16%). While the direction of this association cannot be ascertained from the data, it appears that for some parents a lack of support makes it difficult to find suitable employment. For the Eligible 2s the difference between those in work and not in work is much smaller.

Figure 40: How respondent feels about the amount of support with childcare they receive, by employment status, Eligible 2s and Comparator 3s, Phase 3



Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Previous use of childcare

Parents were also asked about what childcare they had used before their child had reached three years old. The responses for both the Eligible 2s and Comparator 3s are summarised in Table 12. While this was intended to include the nursery presently attended, if the child was in attendance before the age of three, it is clear that some parents did not interpret the question in this way. Hence figures for nurseries are an underestimate.

There were some noticeable differences between the types of childcare used prior to the age of three between the two groups. The Eligible 2s were much more likely than the Comparator 3s to have used a local authority run crèche, nursery, playgroup or pre-school (55% compared with 10% of the Comparator 3s), which is not surprising given their eligibility for a funded place at the age of two. On the other hand, the Comparator 3s were more likely to have used a private or workplace crèche, nursery, playgroup or pre-school (35% of the Comparator 3s compared with 17% of the Eligible 2s). The other main difference was in the use of grandparents for childcare: two thirds (64%) of parents in the Comparator 3s group had used grandparents, compared with one third (31%) of parents of the Eligible 2s.

Table 12: Types of childcare used prior to the age of three

	Eligible 2s	Comparator 3s
	%	%
Private or workplace crèche, nursery, playgroup or pre-school	17	35
Local Authority crèche, nursery, playgroup or pre-school	55	10
Community or voluntary crèche, nursery, playgroup or pre-school	3	5
Childminder	8	14
Grandparents	31	64
Ex-spouse	10	10
Another relative	15	13
Nanny or babysitter	2	3
Friend or neighbour	7	4
Another person	5	6
<i>Unweighted base</i>	<i>220</i>	<i>507</i>

Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

For both the Eligible 2s and Comparator 3s the use of grandparents prior to the age of 3 was more common in less deprived areas. For the Comparator 3s, 71% of those living in the two least deprived SIMD quintiles had used grandparents compared with 54% in the most deprived; these figures were 42% and 28% respectively for the Eligible 2s. Similar patterns were evident for household income for the Comparator 3s. There was also a clear pattern in terms of household income and area deprivation and the use of private or workplace nurseries prior to the age of three, with their use more common among higher income households for the Comparator 3s and in less deprived areas for both groups (Appendix C Tables C31 and C32).

Engagement with ELC setting

Parents were asked if they had participated in a range of different activities since their child had started nursery. Some of these focused on engagement with the child at the nursery, such as visiting their room or staying and playing with them. Some focused on engagement with the staff, for example discussing their child's progress or offering to help out, while other options included some of the wider support settings can offer such as receiving help with food / clothing or learning a new skill. Responses are summarised in Table 13.

Table 13: Activities carried out since child started nursery

	Eligible 2s	Comparator 3s
	%	%
Visited your child's room	94	94
Attended a parents' evening or information meeting	65	62
Attended another type of nursery event	59	46
Helped out/offered to help out in the nursery including on a trip	27	21
Stayed and played with your child	66	52
Discussed your child's progress with her/his keyworker	94	88
Talked to someone about how to support your child's learning at home	57	30
Received help with your welfare rights or issues with benefits	8	1
Received help with transport to and from the nursery	3	1
Received help with food or clothing	11	2
Learned a new skill such as cooking or parenting skills	17	2
<i>Unweighted Base</i>	268	563
<i>Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)</i>		

Almost all parents of the Eligible 2s (>99%) and Comparator 3s (99%) had taken part in at least one of the activities listed since their child had begun nursery. For both groups the most common activities undertaken were visiting their child's room (94% for both groups) and discussing their child's progress with her / his keyworker (94% for the Eligible 2s, 88% for the Comparator 3s). Two thirds (66%) of parents of the Eligible 2s had stayed and played with their child, as had just over half (52%) of parents of the Comparator 3s. Parents of the Eligible 2s were more likely to have spoken to someone about how to support their child's learning at home (57% compared with 30% of the Comparator 3s). Where there are differences between the Comparator 3s and the Eligible 2s in responses to these questions, this is likely to be, at least in part, due to the length of time each group had been attending nursery.

Parents of the Eligible 2s were also more likely to have engaged with some of the wider support some settings are able to provide. For example, 17% of parents in the Eligible 2s group had learned a new skill and 11% had received help with food or clothing, compared with only 2% who had taken part in these activities among the Comparator 3s. Also, 8% of parents of the Eligible 2s had received help with welfare rights or benefits, compared with only 1% of parents in the Comparator 3s.

Accessibility, advantages and disadvantages of child being in nursery

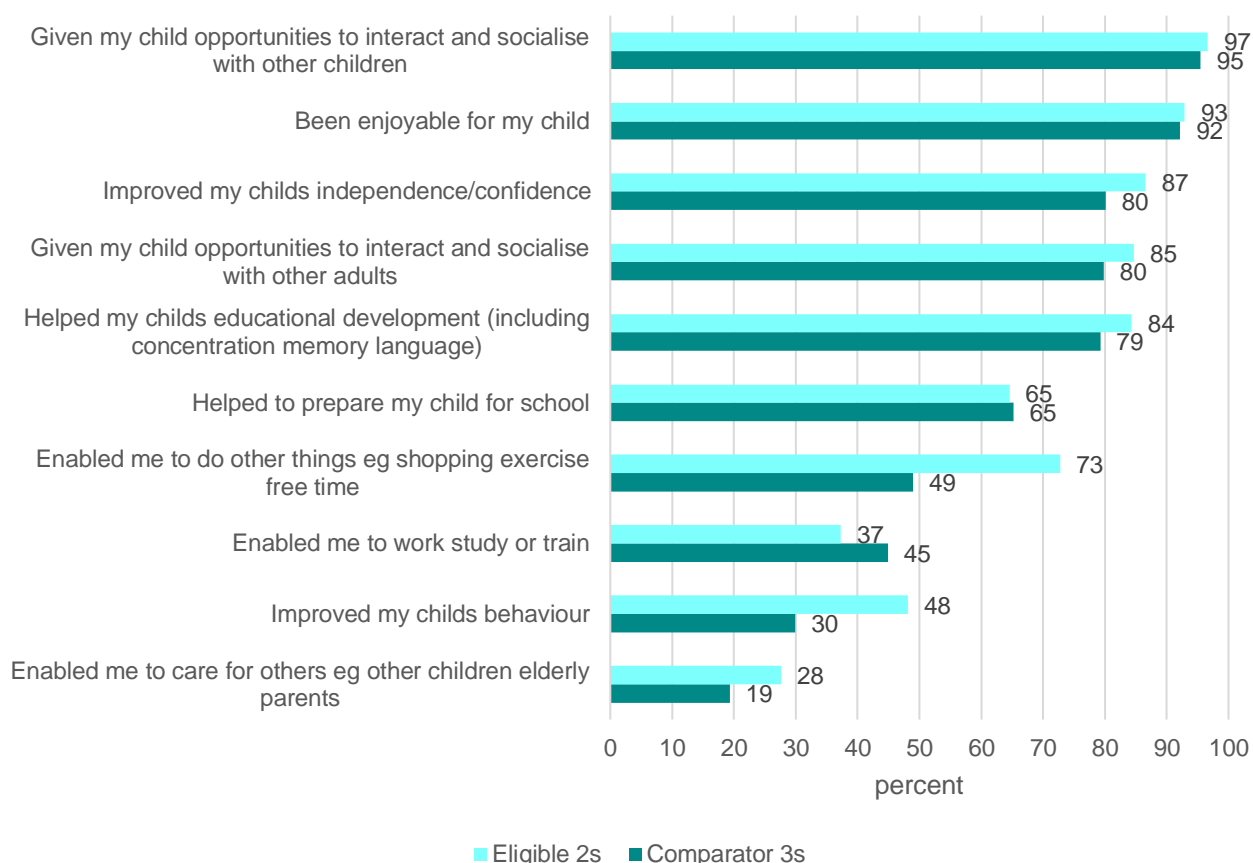
Table 14 shows that a majority of parents lived within 10 minutes of the nursery: 71% of the Eligible 2s and 81% of the Comparator 3s. Only 2% of the Eligible 2s and 1% of the Comparator 3s lived more than half an hour from the nursery they attended.

Table 14: Average duration of a single journey from home to the ELC setting

	Eligible 2s	Comparator 3s
	%	%
0 to 5 minutes	43	51
6 to 10 minutes	29	29
11 to 15 minutes	13	11
16 to 20 minutes	8	6
21 to 30 minutes	5	2
More than 30 minutes	2	1
<i>Unweighted base</i>	263	552
<i>Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)</i>		

Parents were asked what the main advantages and disadvantages were of their child attending nursery. Advantages for the parent – such as enabling them to work, study or train, care for others or to do other things – were included as well as advantages for the child such as improving their confidence, giving them an opportunity to socialise and helping their educational development. A summary of responses for both the Eligible 2s and Comparator 3s is given in Figure 41.

Figure 41: Main advantages of child being in nursery

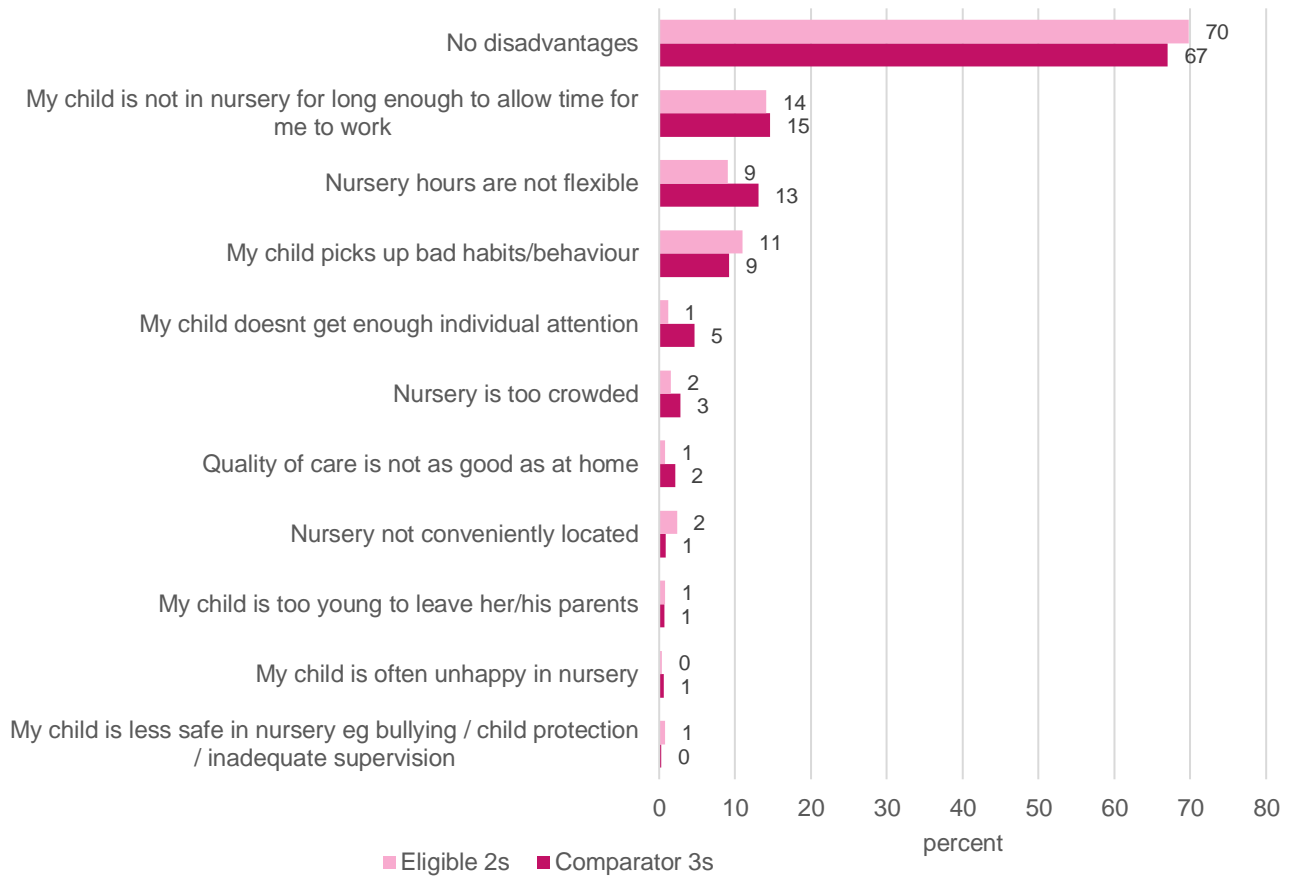


Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

As can be seen responses were broadly similar across the Eligible 2s and Comparator 3s. The most popular responses were to do with advantages for the child, with more than 9 in 10 in each group saying that attending nursery had been enjoyable for their child and that it had given their child opportunities to interact and socialise with other children. A slightly higher proportion of the Comparator 3s than the Eligible 2s mentioned that it had enabled them to work, study or train (45% and 37% respectively), while the reverse was true in terms of enabling them to care for others (28% of Eligible 2s and 19% of Comparator 3s). Those in the Eligible 2s group were more likely to cite as a main advantage that it had enabled them to do things other than work, study or care (73%) than those in the Comparator 3s group (49%). They were also more likely to say that it had improved their child's behaviour (48% compared with 30% for the Comparator 3s).

A majority of parents in both groups said there were no disadvantages to their child being in nursery – 67% of the Comparator 3s and 70% of the Eligible 2s. Where disadvantages were cited the more popular responses were that the child was not in nursery for long enough to enable time for work (15% of Comparator 3s and 14% of Eligible 2s), that nursery hours were not flexible (13% of Comparator 3s and 9% of Eligible 2s), and that the child picks up bad behaviour (9% of Comparator 3s and 11% of Eligible 2s). Other reasons were rarely cited by parents in either group (see Figure 42).

Figure 42: Main disadvantages of child being in nursery



Base: All children (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Summary and conclusions

This report was based on data from Phase 3, of the Scottish Study of Early Learning and Childcare, the final phase of baseline data collection. Phase 3 involved two groups of children: the first comprised children aged three who had participated at Phase 1 when they were eligible for receipt of 600 hours of funded ELC as a two-year-old; the second was a representative sample of all three-year-old children eligible for receipt of and accessing 600 hours of funded ELC in Scotland. The two cohorts of children were analysed separately.

The results from Phase 3 will act as a baseline for assessing the impact of expanded ELC provision on children through comparison with data collected in later phases of the evaluation. This report is slightly more complicated than the reports published for Phase 1 and Phase 2 as it includes a longitudinal element whereby we have data for the same group of children at the beginning of their funded ELC placement as an eligible two-year-old and one year later, when they were aged three. However, it remains 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. While some use of more complex multivariable analysis has been made within this report, the majority of the analysis is simple – 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, findings should be interpreted with caution. Despite this caveat, the data nevertheless provide an important view of the characteristics, experiences and outcomes of parents and children receiving 600 hours of funded early learning and childcare.

The cohort of children who took part at Phase 1 (the “Eligible 2s”) was not intended to be representative of the population of 2-year-olds eligible for funded ELC in Scotland. The Phase 1 report describes how this group of children was selected from ELC settings within a limited set of local authorities who had agreed to participate from the beginning of the study. While attempts were made to contact all the families who took part at Phase 1, some could not be contacted or chose not to participate again. More than half of the children in this group were from single parent families. The parents often had low levels of education and were on low incomes. The second cohort of children (the “Comparator 3s”) were representative of all three-year-olds receiving 600 hours of funded ELC across Scotland. In terms of household composition, income, education and ethnicity, characteristics of this cohort were as expected for representative sample of children accessing funded ELC. For example, 84% of the children were from two-parent households, incomes were equally spread throughout the deciles, nearly half of respondents had a degree and 95% were white.

A quarter of the families in the Eligible 2s cohort, and half of the Comparator 3s used another provider of childcare alongside their ELC setting with grandparents being the main additional provider in the majority of cases. Decisions on the use of

childcare appeared to be driven by income, with working parents particularly likely to require such extra childcare.

Among the Eligible 2s, following a year at nursery, on four of the five ASQ domains there were increases in the proportion of children whose development was deemed to be 'on schedule'. Similarly, on four of the five SDQ domains, plus the total difficulties score, there were increases in the proportion of children assessed as having a 'close to average' score. While this can be viewed as positive, a certain amount of caution must be applied. For the SDQ, the same questionnaire was used at both age two and age three, so the improvement could be down to normal development. For the ASQ, the questionnaires were age specific, but even then we cannot rule out potential biases for this particular cohort, either in the question wording, or because setting staff have got to know children better after a year. Each of these may have led to higher proportions being reported as on schedule at age three. So, while there appears to be progress, it is important to remember that Phase 3 is part of the baseline, and the key objective will be to assess whether the progress is greater after a year of 1140 hours of ELC once the expansion is complete.

The figures for the whole cohort hide the fact that for some children outcomes were better after a year of nursery, but for others they were worse. The majority of those who were on schedule or close to average at Phase 1 were in the same situation at Phase 3. However, a significant minority of children were no longer on schedule with their development. This highlights the importance of regular monitoring of children's development throughout the pre-school years, so that problems are picked up early.

At Phase 1, observations of settings were conducted by Care Inspectorate staff, acting for this study rather than in their official capacity as Care Inspectors, to assess the quality of settings on a range of measures. The rating of settings did not appear to be associated with child outcomes at Phase 3. There could be many reasons for this, either related to what was being measured, or because different types of families prioritise different things when choosing an ELC setting. Further analysis is required to examine this data more completely.

Regression analysis was used to identify the key drivers of ASQ and SDQ scores at Phase 3 among those for whom parent and keyworker questionnaires had been completed at Phase 1. In both models, scores at Phase 1 were seen to be the main driver, although a lot of variation in outcomes could not be explained by the models. This implies that children who were doing well at age two tended to remain ahead, and those who were behind tended to remain behind, although this is not true for all children, nor does it necessarily have to be.

Other drivers identified by the models included being a girl and doing frequent home learning activities. Boys fared worse than girls on four of the five ASQ domains, a trend which is commonly found in research into children's development. The exception to this was the gross motor skills domain. Boys also fared worse on all but the emotional symptoms domain of the five SDQ domains. Frequent engagement in learning activities with an adult at home, such as reading or singing

nursery rhymes is widely recognised in the research literature³⁶ as having positive impacts on a child's development.

As well as the small improvements in child outcomes after a year of funded ELC, there were some small changes in employment prospects for parents. The proportion of respondents in paid employment had increased from 35% to 40%. There were also increases in the proportion of parents who said that because their child was in nursery they had been able to study or improve work-related skills, they had been able to increase the number of hours they work, they had been able to work or look for work, as well as having more time to themselves and being able to think about the future.

Comparing outcomes for those who had taken part at Phase 1 with the new cohort of children at Phase 3, it is evident that the development of those who were eligible for funding at age two (the "Eligible 2s") was not as advanced as the development of those in the nationally representative sample (the "Comparator 3s"). Thus, while there has been an apparent improvement over the course of a year at nursery among the Eligible 2s, there is still a gap between them and the Comparator 3s. The size of this gap will be a key measure when concluding the study in Phase 6, to see whether the increase in hours has helped to close it.

Scores on the SDQ and ASQ scales tended to be highly correlated for both cohorts, 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 again used to identify the key drivers of developmental delays, as assessed by the ASQ and SDQ scales, this time using only variables from Phase 3. For the Eligible 2s, this reduced the ability of the models to explain much of the variation in the sample. Development at age two was strongly correlated with development at age three. With no measure of development at age two included in these models, their explanatory power was lower than for the longitudinal models explored earlier. This highlights the importance of supporting child development from an early age. Not having a long-term condition which might affect development was an obvious driver of development being on schedule. The only other significant factor in either model was frequent home learning activities. Demographic factors, such as income, area deprivation, parental education, and living in a single parent household did not show any significant association with outcomes when included in the models. This implies that the problems identified for the Eligible 2s are fairly equally spread across the different subgroups. Having a

³⁶ See, for example, Bradshaw, P., King, T., Knudsen, L., Law, J. and Sharp, C. (2016). Language Development and Enjoyment of Reading: Impacts of Early Parent-Child Activities in Two Growing up in Scotland Cohorts. Edinburgh: Scottish Government.
<https://www.gov.scot/publications/language-development-enjoyment-reading-impacts-early-parent-child-activities-two/>.

lower income or lower level of education within the Eligible 2s group did not increase the chances of poor outcomes.

For the Comparator 3s, the two models included factors such as living in less deprived areas, having higher levels of education, being white, speaking English as the main language at home, and the parent not having a long-term health condition, all of which implied better outcomes for children. When looking at bivariate analysis, it becomes evident that for the Comparator 3s there is much more of a difference in outcomes between the more and less deprived, whatever measure of deprivation is used, than for the Eligible 2s, and the inclusion of multiple factors in the models implies that there may be a compounding of effects. Indeed, outcomes for the most deprived in terms of income, education and area deprivation among the Comparator 3s actually look very similar to outcomes for the Eligible 2s, so there could be an argument for widening eligibility criteria for funded ELC at age two.

In both models for the Comparator 3s, being a girl was associated with better outcomes, while in the SDQ model, even once other factors were controlled, living in a more ordered home and receiving more than 18 hours of childcare (both formal and informal) a week were both associated with better outcomes. This last factor hints that an increase in hours of ELC above the 600 hours (or 15-16 hours a week) which these children had been receiving may lead to better outcomes, although the measure that has been used in this report for hours of childcare is a very broad one, and it remains to be seen how the increase in funded hours will impact on children. We will have a much clearer picture of that once the remaining phases of data collection are complete.

Home learning only appeared as a key driver in the models for the Eligible 2s. This does not mean that it was not still important for other children, but it does imply that it is particularly important for more deprived families. 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 of the Eligible 2s (compared with only a third of parents of the Comparator 3s) 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, and in particular boys were less likely to have done so.

Around two thirds of parents of the Comparator 3s were in employment at this stage in their child's nursery career, compared with just over one third of the parents of the Eligible 2s. However, among those not working, a lack of affordable, good-quality childcare was only seen as one of the main reasons for not working by a quarter of each cohort. It remains to be seen whether the increase in funded ELC hours will enable more parents, particularly among the Eligible 2s, to take up employment.

The time a child is in nursery offered many other opportunities for parents. More than two thirds of the Eligible 2s said it gave them time to think about the future, and a third had been able to study or improve work-related skills. Half had been

feeling happier, and a slightly larger proportion had been feeling less stressed. Among the Comparator 3s, these figures were slightly lower.

While most parents expressed relatively high levels of life satisfaction and wellbeing, those in the Comparator 3s group tended to be more content than those in the Eligible 2s group. Among the Comparator 3s, single parents and those on low-incomes also tended to report being less satisfied, bringing them to a similar level to the Eligible 2s.

Most parents in both cohorts 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 parents of the Eligible 2s. Parents in both cohorts overwhelmingly recognised the benefits to their children of attending nursery, particularly in terms of their socialisation and education. Most also saw some benefits to themselves, be that through allowing them time to work, study or train, to care for others, or just in having time to themselves. 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.

At the completion of the first three phases of the Scottish Study of Early Learning and Childcare, we can see an overall picture of two groups of children and their families, one more advantaged than the other, even if they do not match perfectly onto the two cohorts of the study. The more advantaged families are more likely to have parents in employment, and to be able to make decisions about childcare based on income. The parents tend to have greater wellbeing, and the children better outcomes when assessed by the ASQ and the SDQ measures. The more disadvantaged families are less able to make use of additional childcare and tend to have worse outcomes for both parents and children. However, there are some indications that an increase in hours of ELC may benefit the more disadvantaged families and help to close the gap. The year of ELC the Eligible 2s have already received appears to have helped them improve on measures of development. The parents of the Eligible 2s tend to have engaged well with the ELC settings and they recognise the opportunities afforded to them in having their child in nursery, in terms of taking up employment or having more time to do other things. As the study enters prepares for its final three phases, when the expansion programme will have been fully rolled out, it will be able to assess whether an increase in hours benefits all children and families, and whether there is a closing of the gap between the more and less advantaged.

Appendix A – SSEL 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 3 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. The aim was to follow up children who had taken part at Phase 1 of the study at age two, to gather data on progress following one year of funded childcare, and to gather data on a nationally representative sample of children of the same age.

Sampling

Sampling was done separately for the two cohorts of children.

The Eligible 2s

At Phase 1 of the study, data was collected about 586 children aged between 2 years and 2 years 6 months who were eligible for and receiving up to 600 hours of government-funded or local-authority-funded ELC provision and their parents. Participants were recruited via ELC settings in 17 local authority areas. The sample of settings was provided by the Scottish Government in consultation with local authority ELC leads. Most settings that met the eligibility criteria in the relevant local authorities were included in the sample. Within participating settings, all children within the specific age range receiving the funded entitlement were eligible for inclusion in the study. The achieved sample was not geographically representative of all eligible 2-year-old children in Scotland and therefore may be best described as a specific cohort of children rather than as nationally representative, even though there are significant similarities between the two.

Phase 1 Fieldwork was conducted between October and December 2018. A total of 428 questionnaires were received from parents / carers and 574 from keyworkers in 151 different settings. Attempts were made to follow up all of these children. No distinction was made depending on the type of questionnaire returned at Phase 1.

As part of the recruitment process for Phase 1, setting heads and parents/carers were informed that they would be contacted again regarding further participation in the study. In August 2019, at the start of the school/nursery term, letters were sent to the heads of all settings that had participated in Phase 1 asking which of the children who had been involved at Phase 1 were still attending the setting, and for those children who had moved to another setting, contact details for the new setting.

Of the 586 children who took part at Phase 1, 416 were believed to be attending the same setting or another setting which took part at Phase 1 (139 separate settings);

133 were traced to new settings (97 settings) and 37 could not be traced (mostly recorded as not attending ELC in Scotland).

The Comparator 3s

The aim of the Comparator 3s sample was to achieve a nationally representative sample of 600 children eligible for and receiving 600 hours of government funded ELC of the same age as the Eligible 2s at the time of the survey.

The sample of Comparator 3s was drawn from settings which took part at Phase 2 or indicated that they would be happy to take part at Phase 3 even if they were not able to take part at Phase 2. This was for three main reasons:

- As most of these settings had previously participated, or attended an information session at Phase 2, efficiencies were made by not repeating information sessions for these settings.
- Similarly, most of the settings involved at Phase 2 had also been observed by the Care Inspectorate and assessed using the Early Childhood Environment Rating Scale (ECERS-3), which was designed for evaluating ELC provision for children from age two and a half to five. Hence further efficiencies were made by not repeating this exercise.
- The achieved sample at Phase 2 was nationally representative of four- and five-year-olds attending ELC settings, once weighting had been applied to take account of the deliberate oversampling of settings in deprived areas. All of the Phase 2 settings also catered for children from the age of three, and the distribution of children across settings was similar for both age groups. Hence with small adjustments to the weighting of data, the Phase 3 sample could be said to be nationally representative of three-year-olds attending ELC settings.

A small number of settings which participated at Phase 2 had since moved on to providing 1140 hours of funded ELC. These settings were not removed from the sample as the children attending these settings would have only recently started at the setting, and it was assumed that the larger number of hours would not yet have had much impact on their development. This also allowed a closer match with the sample for the Eligible 2s, who were not removed from the sample if they were attending a setting offering 1140 hours at the time of the Phase 3 survey.

At Phase 2, settings in deprived areas were deliberately oversampled. This was not an aim of the Phase 3 sample, so proportionally fewer settings from deprived areas were selected at Phase 3, with the aim of achieving a nationally representative sample. To calculate the size of the issued sample, it was assumed that a response of around 80% of that of Phase 2 would be achieved. This was a rough estimate based on the fact that there would be fewer than half the number of children meeting the age criteria at Phase 3 than at Phase 2, so the proportion of settings with fewer than 10 eligible children would be higher. There was also an expectation that some settings which had participated at Phase 2 would be unwilling or unable to do so at Phase 3.

Based on these sampling assumptions, all 122 settings in the four least deprived quintiles of the Scottish Index of Multiple Deprivation which either took part at Phase 2 or indicated a willingness to take part were invited to take part again. Settings from the most deprived quintile who took part at Phase 2 or indicated a willingness to take part were stratified by size, and around a quarter of them – 31 in total – were selected randomly. It is recognised that the sample was not as perfectly random as one achieved by resampling from all settings offering 600 hours of funded childcare to three-year-olds, but it is a good approximation of this.

The second stage of the sampling process was to sample within the settings. Up to 10 children were selected within each sampled setting. In settings with fewer than 10 eligible 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.

Two settings were removed from the Comparator 3s sample because they also had ten or more children in the Eligible 2s sample. A number of other settings were included in both samples. No such setting had more than 6 children from the Eligible 2s sample, so they were instructed to complete the survey for all children from the Eligible 2s sample and for up to 10 additional randomly selected children in the same way as the other settings in the Comparator 3s sample.

Data collection

Data were gathered on children in the cohort via two methods: a survey of parents/carers; and a survey of the children's ELC keyworkers (primarily to measure child development). Data about the settings were also available, including observations of ELC settings attended by sampled children at Phase 1 and Phase 2 carried out by Care Inspectorate inspectors³⁷.

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) and Strengths and Difficulties (SDQ)³⁸ questionnaires but also collected information about the number of hours the child attended the ELC setting in the previous week.

Fieldwork was conducted between October and December 2019. For the Eligible 2s, questionnaires were sent to 236 settings for a total of 549 of the 586 children who took part at Phase 1.

³⁷ 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.

³⁸ Further information on these instruments is provided in the relevant section of the report.

- At least one questionnaire was returned for 391 children, including 376 keyworker questionnaires and 269 parent questionnaires; 254 children had both questionnaires completed
- 372 children had keyworker questionnaires for both Phases – 65% of the 574 keyworker questionnaires returned at Phase 1
- 228 children had parent questionnaires for both phases – 53% of the 428 parent questionnaires returned at Phase 1
- In total, 212 children had both questionnaires completed at both phases – 51% of the 416 with both questionnaires completed at Phase 1

For the Comparator 3s, questionnaire packs were sent to 151 ELC settings and at least one questionnaire was returned from 112 of these. Response rates for this group of children are not as easy to estimate because information about the number of eligible children in every setting was not available.

- At least one questionnaire was returned for 851 children, including 811 keyworker questionnaires and 565 parent questionnaires; 515 children had both questionnaires completed
- Based on the limited available evidence³⁹, response rates among keyworkers in the 112 responding settings was around 90%, while for parents / carers it was around 60%.

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. Because the Eligible 2s were not a random sample, weighting was not applied. The sample of settings was not geographically representative of Scotland, and because there was no participation at all in 15 local authority areas, it was not possible to compensate for this unequal sampling probability via weighting. Therefore it was most appropriate to treat the Phase 1 sample as a specific cohort of children, rather than weight the data and claim representativeness of children eligible for funded ELC at age two. At Phase 3, this cohort had reduced in number because of non-response and non-contact. However, as Table B1 shows, in terms of most demographics, such as area deprivation and sex of the child, there was no significant bias in the response, so the sample continues to represent the same cohort of children. The proportion of non-white children in the sample had decreased, although this is not thought to significantly affect results. The proportion of children for whom further assessment

³⁹ 70 settings provided information about the number of eligible children, at an average of 8.4 potential responses per setting.

was needed on the Phase 1 ASQ communication and problem solving domains was also lower among those who participated at Phase 3 than those who did not participate. This does not affect results presented in this document for change between Phase 1 and Phase 3, as analysis has been restricted to only those who participated at Phase 3. However, it is worth bearing in mind for future comparisons with children who completed 1140 hours of ELC as Eligible 2s. The proportion of children on schedule on these domains was similar among participants and non-participants.

Table B1: Characteristics of participants and non-participants at Phase 3, Eligible 2s

	Participated at Phase 3	Did not participate at Phase 3	All who participated at Phase 1
Phase 1 characteristics	%	%	%
Sex			
Boys	52	55	53
Girls	48	45	47
Household type			
Single parent	53	54	53
Couple parent	47	46	47
Number of children in household			
One	28	29	28
Two	41	35	39
Three or more	31	35	33
Highest qualification of respondent			
None	10	15	12
Standard Grade or equivalent lower school qualification	37	35	36
Higher, Advanced Higher or equivalent upper school qualification	16	17	17
HNC, HND or equivalent post-school, pre-higher education qualification	20	17	19
Degree, PhD, or other HE qualification, or professional qualification	17	15	17
Area deprivation (Scottish Index of Multiple Deprivation)			
Most deprived 20%	45	48	46
Other	55	52	54
Equivalentised income			
Bottom 10%	48	50	49
2nd	20	21	20
3rd	12	14	13
Top 70%	20	15	19
Ethnicity			
White	97	93	96
Non-white	3	7	4
Funding type			
Government funded	78	76	78
Local authority funded (referred)	21	22	21
Both	1	2	1

... Continued

Table B1 Continued

Long-term health condition			
Yes	13	13	13
No	87	87	87
ASQ Communication domain			
Further assessment may be needed	33	42	36
Monitoring suggested	20	16	18
Child's development appears on schedule	47	42	45
ASQ Gross motor domain			
Further assessment may be needed	22	25	23
Monitoring suggested	17	11	15
Child's development appears on schedule	61	64	62
ASQ Fine motor domain			
Further assessment may be needed	26	29	27
Monitoring suggested	34	31	33
Child's development appears on schedule	40	40	40
ASQ Problem solving domain			
Further assessment may be needed	43	48	45
Monitoring suggested	23	19	22
Child's development appears on schedule	34	32	34
ASQ Personal-Social domain			
Further assessment may be needed	33	43	37
Monitoring suggested	27	18	24
Child's development appears on schedule	40	38	39
SDQ total difficulties score			
Close to average	44	42	43
Slightly raised	26	25	26
High	13	15	14
Very high	16	17	16
<i>Unweighted base (keyworker questionnaire Phase 1)</i>	386	188	574
<i>Unweighted base (parent questionnaire Phase 1)</i>	288	140	428
<i>Base: All children who participated at Phase 1</i>			

For the Comparator 3s, an assumption was made that the sampling frame for Phase 2 was complete also for Phase 3. This was not totally true, as settings which only opened in August 2019 or settings which did not cater for four- and five-year-olds would have been excluded, although it was mostly true. A further assumption was made that those who declined to participate at Phase 2 and did not indicate at the time that they were willing to participate at a later phase would also have declined to participate at Phase 3. These assumptions allow us to treat the Phase 3 sample as a random sample.

Non-response bias occurs where there is a differential level of non-response between different groups. In this survey among settings for the Comparator 3s 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 at Phase 2. 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 (three-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 for the Comparator 3s, except where discussing the characteristics of the cohort, and unweighted data for the Eligible 2s. Tests for statistical significance have been conducted through the use of logistic regression, and all differences for the Comparator 3s discussed within the text are statistically significant unless otherwise stated. Because the Eligible 2s were not a random sample, it is not meaningful to talk of statistical significance for that group. However, tests have been applied as if they were a random sample, although strict rules for their interpretation have not been followed, particularly given the relatively small sample size of this group.

Appendix C – Supplementary tables

Table C1: ASQ gross motor domain Phase 3 by ASQ gross motor domain Phase 1

	Phase 1 ASQ gross motor domain			All
	Further assessment may be needed	Monitoring suggested	Child's development appears on schedule	
Phase 3 ASQ gross motor domain	%	%	%	%
Further assessment may be needed	55	27	26	32
Monitoring suggested	22	18	20	20
Child's development appears on schedule	23	55	54	48
<i>Unweighted base</i>	<i>77</i>	<i>62</i>	<i>214</i>	<i>353</i>

Base: All children (with keyworker observations at both Phase 1 and Phase 3, unweighted)

Table C2: ASQ fine motor domain Phase 3 by ASQ fine motor domain Phase 1

	Phase 1 ASQ fine motor domain			All
	Further assessment may be needed	Monitoring suggested	Child's development appears on schedule	
Phase 3 ASQ fine motor domain	%	%	%	%
Further assessment may be needed	44	31	10	26
Monitoring suggested	20	25	21	22
Child's development appears on schedule	36	44	69	52
<i>Unweighted base</i>	<i>90</i>	<i>117</i>	<i>147</i>	<i>354</i>

Base: All children (with keyworker observations at both Phase 1 and Phase 3, unweighted)

Table C3: ASQ problem solving domain Phase 3 by ASQ problem solving domain Phase 1

	Phase 1 ASQ problem solving domain			All
	Further assessment may be needed	Monitoring suggested	Child's development appears on schedule	
Phase 3 ASQ problem solving domain	%	%	%	%
Further assessment may be needed	53	34	18	37
Monitoring suggested	10	20	7	11
Child's development appears on schedule	37	46	76	52
<i>Unweighted base</i>	<i>147</i>	<i>79</i>	<i>119</i>	<i>345</i>
<i>Base: All children (with keyworker observations at both Phase 1 and Phase 3, unweighted)</i>				

Table C4: ASQ personal-social domain Phase 3 by ASQ personal-social domain Phase 1

	Phase 1 ASQ personal-social domain			All
	Further assessment may be needed	Monitoring suggested	Child's development appears on schedule	
Phase 3 ASQ personal-social domain	%	%	%	%
Further assessment may be needed	37	4	7	16
Monitoring suggested	16	17	7	12
Child's development appears on schedule	48	78	87	71
<i>Unweighted base</i>	<i>122</i>	<i>93</i>	<i>149</i>	<i>364</i>
<i>Base: All children (with keyworker observations at both Phase 1 and Phase 3, unweighted)</i>				

Table C5: ASQ communication domain Phase 1 and Phase 3 by ITERS score

	Low-Average ITERS (<5)		Good ITERS (5+)	
	Phase 1	Phase 3	Phase 1	Phase 3
	%	%	%	%
Further assessment may be needed	39	33	28	24
Monitoring suggested	17	15	22	22
Child's development appears on schedule	44	51	49	54
<i>Unweighted base</i>	195	195	144	144

Base: All children (with keyworker observations at both Phase 1 and Phase 3, unweighted)

Table C6: SDQ total difficulties score Phase 1 and Phase 3 by ITERS score

	Low-Average ITERS (<5)		Good ITERS (5+)	
	Phase 1	Phase 3	Phase 1	Phase 3
	%	%	%	%
Close to average	38	58	48	56
Raised / high	62	42	52	44
<i>Unweighted base</i>	193	193	144	144

Base: All children (with keyworker observations at both Phase 1 and Phase 3, unweighted)

Table C7: Child's health in general Phase 3 by child's health in general Phase 1

	Phase 1 child's health in general			
	Very good	Good	Fair	All
Phase 3 child's health in general	%	%	%	%
Very good	73	38	24	58
Good	26	57	24	35
Fair / bad	1	6	52	7
<i>Unweighted base</i>	135	69	21	225

Base: All children (with parent/carer questionnaire at both Phase 1 and Phase 3, unweighted)

Table C8: Long-term health condition Phase 3 by long-term health condition Phase 1

	Phase 1 long-term health condition or illness lasting or expected to last 12 months or more		
	Yes	No	All
Phase 3 long-term health condition	%	%	%
Yes	67	7	14
No	33	93	86
<i>Unweighted base</i>	27	196	223
<i>Base: All children (with parent/carer questionnaire at both Phase 1 and Phase 3, unweighted)</i>			

Table C9: Parental concerns about how child talks Phase 3 by parental concerns about how child talks Phase 1

	Phase 1 parental concerns about how child talks in words or sentences			
	No	A little	Yes	All
Phase 3 parental concerns about how child talks	%	%	%	%
No	90	49	21	75
A little	7	46	21	15
Yes	3	6	57	10
<i>Unweighted base</i>	162	35	28	225
<i>Base: All children (with parent/carer questionnaire at both Phase 1 and Phase 3, unweighted)</i>				

Table C10: Home learning environment: Frequency of looking at books or reading stories Phase 3 by frequency of looking at books or reading stories Phase 1

	Phase 1 number of days in last 7 on which looked at books or read stories at home				All
	0-2 days	3-4 days	5-6 days	7 days	
Phase 3 number of days in last 7 on which looked at books or read stories at home	%	%	%	%	
0-2 days	42	18	10	8	14
3-4 days	25	33	16	8	16
5-6 days	13	20	19	14	16
7 days	21	29	55	70	54
<i>Unweighted base</i>	<i>24</i>	<i>45</i>	<i>31</i>	<i>118</i>	<i>218</i>

Base: All respondents (with parent questionnaire at both Phase 1 and Phase 3, unweighted)

Table C11: Home learning environment: Frequency of painting or drawing at home Phase 3 by frequency of painting or drawing at home Phase 1

	Phase 1 number of days in last 7 on which did activities involving painting or drawing at home				All
	0-2 days	3-4 days	5-6 days	7 days	
Phase 3 number of days in last 7 on which did activities involving painting or drawing at home	%	%	%	%	
0-2 days	44	13	17	11	22
3-4 days	37	37	39	21	33
5-6 days	12	30	15	15	19
7 days	7	21	29	53	26
<i>Unweighted base</i>	<i>59</i>	<i>63</i>	<i>41</i>	<i>53</i>	<i>216</i>

Base: All respondents (with parent questionnaire at both Phase 1 and Phase 3, unweighted)

Table C12: Home learning environment: Frequency of reciting nursery rhymes or singing songs at home Phase 3 by frequency of reciting nursery rhymes or singing songs at home Phase 1

	Phase 1 number of days in last 7 on which recited nursery rhymes or sung songs at home				
	0-2 days	3-4 days	5-6 days	7 days	All
Phase 3 number of days in last 7 on which recited nursery rhymes or sung songs at home	%	%	%	%	
0-2 days	24	21	*	2	7
3-4 days	12	13	*	5	8
5-6 days	18	33	*	10	14
7 days	45	33	*	83	70
<i>Unweighted base</i>	33	24	15	143	215

Base: All respondents (with parent questionnaire at both Phase 1 and Phase 3, unweighted)

Table C13: Home learning environment: Frequency of playing at recognising letters, words, numbers or shapes at home Phase 3 by frequency of playing at recognising letters, words, numbers or shapes at home Phase 1

	Phase 1 number of days in last 7 on which played at recognising letters, words, numbers or shapes at home				
	0-2 days	3-4 days	5-6 days	7 days	All
Phase 3 number of days in last 7 on which played at recognising letters, words, numbers or shapes at home	%	%	%	%	
0-2 days	28	19	15	6	16
3-4 days	25	28	15	12	19
5-6 days	18	22	42	12	20
7 days	28	31	27	71	46
<i>Unweighted base</i>	60	36	33	86	215

Base: All respondents (with parent questionnaire at both Phase 1 and Phase 3, unweighted)

Table C14: How coping as a parent, Phase 1 and Phase 3

	Phase 1	Phase 3
As a parent/carers ...	%	%
I always feel I am coping really well - things never get on top of me	8	8
Most of the time I feel I am coping pretty well	51	50
Sometimes I feel I am coping but sometimes things get on top of me	38	38
Most of the time I feel I am not coping very well	3	2
I feel I am not coping at all these days	-	1
<i>Unweighted base</i>	219	219

Base: All respondents (with parent questionnaire at both Phase 1 and Phase 3, unweighted)

Table C15: Proportion of children on schedule for ASQ gross motor, fine motor, problem solving and personal-social domains, by sex of child, Eligible 2s and Comparator 3s, Phase 3

	Eligible 2s		Comparator 3s	
	Boys	Girls	Boys	Girls
	%	%	%	%
Gross motor domain	47	46	49	44
Fine motor domain	40	67	53	75
Problem solving domain	46	59	59	67
Personal-social domain	64	79	74	81
<i>Unweighted base</i>	187	183	408	396

Base: All children (keyworker observations, Eligible 2s unweighted, Comparator 3s weighted)

Table C16: Proportion of children scoring close to average for the individual SDQ domains, by sex of child, Eligible 2s and Comparator 3s, Phase 3

	Eligible 2s		Comparator 3s	
	Boys	Girls	Boys	Girls
	%	%	%	%
Emotional symptoms domain	80	73	80	79
Conduct problems domain	72	78	77	86
Hyperactivity domain	44	62	53	68
Peer problems domain	46	63	58	68
Prosocial behaviour domain	63	81	67	83
<i>Unweighted base</i>	188	183	405	396

Base: All children (keyworker observations, Eligible 2s unweighted, Comparator 3s weighted)

Table C17: Whether child sleeps through the night, Eligible 2s and Comparator 3s, Phase 3

	Eligible 2s	Comparator 3s
	%	%
Never sleeps right through the night	18	12
1-2 times a week	12	13
3-5 times a week	15	23
6 times a week	9	13
Every night	47	38
<i>Unweighted base</i>	268	563

Base: All children (parent questionnaire, Eligible 2s unweighted, Comparator 3s weighted)

Table C18: Frequency of looking at books or reading stories at home, by area deprivation, Eligible 2s and Comparator 3s Phase 3

	Scottish index of multiple deprivation quintiles				All
	Most deprived 20%	2nd	3rd	Least deprived 40%	
	%	%	%	%	%
Eligible 2s					
Not in last 7 days	3	-	-	3	2
1 to 3 days	28	12	15	10	20
4 to 6 days	22	22	29	28	24
7 days	46	66	56	59	54
<i>Unweighted base</i>	127	73	34	29	265
Comparator 3s					
Not in last 7 days	-	1	-	-	0
1 to 3 days	19	18	10	12	14
4 to 6 days	41	28	24	14	24
7 days	40	53	66	74	62
<i>Unweighted base</i>	100	108	112	236	558

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table C19: Whether would work more if could afford good quality childcare which was reliable, convenient and affordable, by equivalised income, Comparator 3s Phase 3

	Equivalised household income			
	Lowest income quintile	2nd	Top 3 income quintiles	All
	%	%	%	%
Comparator 3s				
Strongly agree	28	24	10	15
Agree	25	18	16	18
Neither agree nor disagree	36	36	28	30
Disagree	10	12	32	25
Strongly disagree	-	10	15	12
<i>Unweighted base</i>	<i>44</i>	<i>75</i>	<i>270</i>	<i>419</i>

Base: All respondents in employment (parent questionnaire Phase 3, Comparator 3s weighted)

Table C20: General health, by highest level of education, Eligible 2s and Comparator 3s Phase 3

	Highest level of education					All
	None	Lower school (Standard grade or equivalent)	Upper school (Highers or equivalent)	Post-school pre-HE (HNC, HND, etc.)	Degree or equivalent	
	%	%	%	%	%	%
Eligible 2s						
Very good	19	24	17	27	26	24
Good	39	37	36	35	49	39
Fair	32	33	31	29	23	30
Bad	3	6	11	6	-	6
Very bad	6	-	6	2	2	2
<i>Unweighted base</i>	<i>31</i>	<i>87</i>	<i>36</i>	<i>62</i>	<i>43</i>	<i>267</i>
Comparator 3s						
Very good	*	29	36	35	46	39
Good	*	42	40	47	44	44
Fair	*	20	16	17	8	14
Bad	*	9	8	1	1	3
Very bad	*	-	-	-	-	-
<i>Unweighted base</i>	<i>14</i>	<i>79</i>	<i>72</i>	<i>130</i>	<i>263</i>	<i>564</i>

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table C21: General health, by household type, Eligible 2s and Comparator 3s Phase 3

	Single parents	Couple parents	All
	%	%	%
Eligible 2s			
Very good	20	29	24
Good	40	37	39
Fair	33	25	30
Bad	6	5	6
Very bad	1	4	2
<i>Unweighted base</i>	<i>153</i>	<i>114</i>	<i>267</i>
Comparator 3s			
Very good	27	42	39
Good	43	44	44
Fair	22	12	14
Bad	8	2	3
Very bad	-	-	-
<i>Unweighted base</i>	<i>89</i>	<i>474</i>	<i>564</i>

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table C22: How longstanding condition or illness affects parent, Eligible 2s and Comparator 3s Phase 3

	Eligible 2s	Comparator 3s
	%	%
Vision	2	3
Hearing	6	4
Mobility	28	24
Learning, concentrating or remembering	28	16
Stamina or breathing difficulty	22	20
Mental health, social, emotional or behavioural issues	75	64
Other impairment(s)	12	24
<i>Unweighted base</i>	106	98

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%.

Table C23: Longstanding health condition, by equivalised income, Comparator 3s Phase 3

	Equivalised household income			All
	Lowest income quintile	2nd	Top 3 income quintiles	
	%	%	%	%
Comparator 3s	37	23	13	20
<i>Unweighted base</i>	98	110	309	563

Base: All respondents in employment (parent questionnaire Phase 3, Comparator 3s weighted)

Table C24: Longstanding health condition, by highest level of education, Eligible 2s and Comparator 3s Phase 3

	Highest level of education					All
	None	Lower school (Standard grade or equivalent)	Upper school (Highers or equivalent)	Post-school pre-HE (HNC, HND, etc.)	Degree or equivalent	
	%	%	%	%	%	%
Eligible 2s	37	43	50	37	37	41
<i>Unweighted base</i>	30	87	36	59	43	264
Comparator 3s	*	35	29	19	12	20
<i>Unweighted base</i>	15	79	72	130	262	563

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table C25: Longstanding health condition, by household type, Eligible 2s and Comparator 3s Phase 3

	Single parents	Couple parents	All
	%	%	%
Eligible 2s	43	38	41
<i>Unweighted base</i>	150	114	264
Comparator 3s	29	18	20
<i>Unweighted base</i>	90	472	563

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table C26: Proportion agreeing with activities done / perceived change in feelings because child is in nursery, by area deprivation (SIMD), Eligible 2s and Comparator 3s Phase 3

	Scottish index of multiple deprivation quintiles				
	Most deprived 20%	2nd	3rd	Least deprived 40%	All
	%	%	%	%	%
Eligible 2s					
Have been feeling happier	55	46	53	47	51
Have been feeling less stressed	64	50	60	48	58
Had more time to oneself	75	76	57	63	72
Care for other family members	59	52	62	52	57
Study or improve work related skills	37	31	31	29	33
Increase the number of hours work	19	21	15	11	18
Work or look for work	45	49	48	43	47
Undertaken voluntary work	13	15	8	12	13
Think about what may do in the future	70	68	81	69	71
<i>Unweighted base</i>	123	69	31	29	253
Comparator 3s					
Have been feeling happier	43	41	42	41	42
Have been feeling less stressed	37	45	44	41	42
Had more time to oneself	72	64	62	57	63
Care for other family members	42	28	33	38	35
Study or improve work related skills	17	35	40	36	33
Increase the number of hours work	15	33	27	30	27
Work or look for work	49	44	54	57	52
Undertaken voluntary work	5	10	11	9	9
Think about what may do in the future	66	61	56	52	57
<i>Unweighted base</i>	98	105	110	226	564

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table C27: Proportion agreeing with activities done / perceived change in feelings because child is in nursery, by highest level of education, Eligible 2s and Comparator 3s Phase 3

	Highest level of education					All
	None	Lower school (Standard grade or equivalent)	Upper school (Highers or equivalent)	Post-school pre-HE (HNC, HND, etc.)	Degree or equivalent	
	%	%	%	%	%	%
Eligible 2s						
Have been feeling happier	53	55	40	46	63	51
Have been feeling less stressed	57	60	60	55	68	58
Had more time to oneself	77	72	83	70	65	72
Care for other family members	59	55	68	52	55	57
Study or improve work related skills	8	36	29	39	45	33
Increase the number of hours work	8	15	18	23	27	18
Work or look for work	32	49	41	59	43	47
Undertaken voluntary work	4	19	22	5	12	13
Think about what may do in the future	67	80	74	63	67	71
<i>Unweighted base</i>	30	83	35	59	39	253
Comparator 3s						
Have been feeling happier	*	38	49	39	40	42
Have been feeling less stressed	*	37	44	38	43	42
Had more time to oneself	*	66	69	59	61	63
Care for other family members	*	33	34	43	34	35
Study or improve work related skills	*	18	37	43	33	33
Increase the number of hours work	*	20	24	29	30	27
Work or look for work	*	43	43	57	58	52
Undertaken voluntary work	*	10	4	9	10	9
Think about what may do in the future	*	55	68	62	52	57
<i>Unweighted base</i>	13	75	72	121	254	564

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table C28: Proportion agreeing with activities done / perceived change in feelings because child is in nursery, by household type, Eligible 2s and Comparator 3s Phase 3

	Household type		
	Single parents	Couple parents	All
	%	%	%
Eligible 2s			
Have been feeling happier	53	49	51
Have been feeling less stressed	61	55	58
Had more time to oneself	69	76	72
Care for other family members	55	59	57
Study or improve work related skills	37	29	33
Increase the number of hours work	17	19	18
Work or look for work	47	47	47
Undertaken voluntary work	12	13	13
Think about what may do in the future	76	64	71
<i>Unweighted base</i>	146	107	253
Comparator 3s			
Have been feeling happier	50	40	42
Have been feeling less stressed	41	42	42
Had more time to oneself	68	62	63
Care for other family members	37	35	35
Study or improve work related skills	34	32	33
Increase the number of hours work	20	28	27
Work or look for work	55	52	52
Undertaken voluntary work	4	10	9
Think about what may do in the future	66	55	57
<i>Unweighted base</i>	85	454	564

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table C29: Proportion agreeing with activities done / perceived change in feelings because child is in nursery, by SDQ total difficulties score, Eligible 2s and Comparator 3s Phase 3

	SDQ total difficulties score				
	Close to average	Slightly raised	High	Very high	All
	%	%	%	%	%
Eligible 2s					
Have been feeling happier	51	56	51	42	51
Have been feeling less stressed	60	56	63	46	58
Had more time to oneself	73	70	73	74	72
Care for other family members	58	55	54	55	57
Study or improve work related skills	33	35	26	43	33
Increase the number of hours work	22	8	9	17	18
Work or look for work	46	45	43	48	47
Undertaken voluntary work	14	13	6	10	13
Think about what may do in the future	74	65	62	71	71
<i>Unweighted base</i>	134	43	39	24	253
Comparator 3s					
Have been feeling happier	41	43	44	40	42
Have been feeling less stressed	40	45	38	44	42
Had more time to oneself	62	65	74	60	63
Care for other family members	34	37	48	36	35
Study or improve work related skills	34	29	51	22	33
Increase the number of hours work	27	30	23	20	27
Work or look for work	56	42	53	45	52
Undertaken voluntary work	9	13	6	0	9
Think about what may do in the future	54	57	78	66	57
<i>Unweighted base</i>	316	110	35	34	564

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table C30: Proportion of children for whom full costs of time child spends at nursery are met by the government, by area deprivation, Eligible 2s and Comparator 3s, Phase 3

	Scottish index of Multiple deprivation quintiles				All
	Most deprived 20%	2nd	3rd	Least deprived 40%	
	%	%	%	%	%
Eligible 2s	93	93	88	90	92
<i>Unweighted base</i>	<i>119</i>	<i>67</i>	<i>33</i>	<i>30</i>	<i>251</i>
Comparator 3s	92	80	72	74	78
<i>Unweighted base</i>	<i>94</i>	<i>106</i>	<i>111</i>	<i>233</i>	<i>545</i>

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table C31: Use of grandparents and private or workplace nurseries for childcare prior to the age of three, by area deprivation, Eligible 2s and Comparator 3s Phase 3

	Scottish index of Multiple deprivation quintiles				All
	Most deprived 20%	2nd	3rd	Least deprived 40%	
	%	%	%	%	%
Eligible 2s					
Grandparents	28	33	31	42	31
Private nursery	13	16	28	29	17
<i>Unweighted base</i>	<i>102</i>	<i>63</i>	<i>29</i>	<i>24</i>	<i>220</i>
Comparator 3s					
Grandparents	54	61	62	71	64
Private nursery	19	27	37	46	35
<i>Unweighted base</i>	<i>88</i>	<i>95</i>	<i>99</i>	<i>223</i>	<i>507</i>

Base: All respondents (parent questionnaire Phase 3, Eligible 2s unweighted, Comparator 3s weighted)

Table C32: Use of grandparents and private or workplace nurseries for childcare prior to the age of three, by household income, Comparator 3s Phase 3

	OECD equivalized income quintiles			All
	Bottom 20%	2nd	Top 60%	
	%	%	%	%
Comparator 3s				
Grandparents	43	60	72	64
Private nursery	19	24	44	35
<i>Unweighted base</i>	83	100	286	507

Base: All respondents (parent questionnaire Phase 3, Comparator 3s weighted)

Appendix D – Regression analysis

Tables D1 to D6 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 at Phase 3.

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.

The first two regression models are longitudinal models. All of the predictor variables included are from Phase 1, while the outcome variables are from Phase 3. This introduces a time element allowing us to say for certain that all of the predictor variables predate the outcome – although this does not imply causality. The other four models are cross-sectional, taking all the data from Phase 3.

Tables D1 to D6 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 1.7 for the category 'Female' means that girls are more likely than boys (the base category) to exhibit development that is on schedule for at least four of the five ASQ domains (and the odds of a girl exhibiting such development are 1.7 times those for a boy, 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 4 and 5, 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 the first two models this is between 0.2 and 0.25, which is fairly typical for this type of analysis, while in the subsequent models this is lower still. 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).

All 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 all were found to be stable. Because of the small sample size for all the models, but particularly the longitudinal ones, it was not possible to include a large number of predictor variables. Instead a number of key variables were forced into each of the models. Other variables were then systematically tested to check for a significant association with the outcome variable when controlling other factors. Only tested variables that were significant at the 10% (0.10) level were included in the final models as presented in Tables C1 to C6. The variables which were forced into the models are included in the Tables irrespective of their level of significance. Forced variables for the longitudinal models were the Phase 1 score (ASQ 4+ domains on schedule or SDQ total difficulties on schedule, to match the outcome), the ITERS rating from the setting observation data, sex of the child and area deprivation of the home address. Forced variables for the cross-sectional models were sex of the child, area deprivation of the home address and whether the child has a long-term condition which may affect their development, as reported by either the keyworker or the parent. A list of all the variables considered for inclusion in the regression models is given below.

Variables considered for inclusion in regression models

Longitudinal models (All variables from Phase 1)

SDQ total difficulties score (SDQ model only) (banded)

ASQ 4+ domains on schedule (ASQ model only) (banded)

ITERS total score (from setting observations)

Sex

Area deprivation (SIMD)

In employment

Equivalised household income (banded)

Number of parents in household

Number of siblings

Ethnic group

Language spoken at home

Highest qualification of respondent

Longstanding illness

Ever breastfed

Whether sleeps through night

Hours sleep per 24 (banded)

Home learning environment (banded)

Parental warmth scale (banded)

Parental longstanding illness

Parent age (banded)

Short WEMWBS (banded)

Parental self-efficacy

Any formal childcare (other than nursery)

Any informal childcare

Feelings about amount of support

Cross-sectional models (All variables from Phase 3)

Sex

Area deprivation (SIMD)

In employment

Equivalised household income (banded)

Number of parents in household

Number of siblings

Ethnic group

Language spoken at home

Highest qualification of respondent

Longstanding illness

Ever breastfed

Whether sleeps through night

Hours sleep per 24 (banded)

Home learning environment (banded)

Parental warmth scale (banded)

Parental longstanding illness

Parent age (banded)

Short WEMWBS (banded)

Parental self-efficacy

Any formal childcare (other than nursery)

Any informal childcare

Feelings about amount of support

Total hours of childcare (banded)

Confusion, hubbub and order scale (banded)

Table D1: Logistic regression model of at least four domains on schedule on the Ages and Stages Questionnaire Phase 3, Eligible 2s (using Phase 1 predictor variables)

	Odds ratio	Confidence interval	Sig. (compared with base)	Sig. (overall)
Phase 1 - ASQ summary measure				<0.001
On schedule for at least four domains	5.4	(2.6 - 11.2)	<0.001	
Not on schedule for at least two domains				
Sex of child				0.076
Female	1.7	(0.9 - 3.0)	0.076	
Male (+ missing)				
Phase 1 - Area deprivation (SIMD) of home address				0.755
less deprived (+ missing)	0.9	(0.5 - 1.6)	0.755	
20% most deprived				
Phase 1 - ITERS total score				0.112
Not observed	0.2	(0.1 - 0.9)	0.037	
6+	0.4	(0.1 - 1.0)	0.056	
5 - <6	0.9	(0.4 - 2.0)	0.708	
4 - <5	0.7	(0.3 - 1.7)	0.431	
<4				
Phase 1 - Highest qualification of respondent				0.023
Degree / HE	0.9	(0.4 - 2.0)	0.710	
Upper school / post-school/pre-HE (Highers, HNC, etc.) (+ missing)	2.3	(1.2 - 4.4)	0.015	
None / lower school (Standard Grade, etc.)				
Phase 1 - Home learning environment scale				0.021
Highest quartile (most frequent activities)	2.3	(1.1 - 4.8)	0.021	
Other (+ missing)				
n = 243	Naglekerke R-square = 0.24			

Table D2: Logistic regression model of close to average total difficulties score on the Strengths and Difficulties Questionnaire Phase 3, Eligible 2s (using Phase 1 predictor variables)

	Odds ratio	Confidence interval	Sig. (compared with base)	Sig. (overall)
Phase 1 - SDQ total difficulties score				<0.001
Close to average	2.9	(1.7 - 4.9)	<0.001	
Raised/High/Very high				
Sex of child				0.028
Female	1.8	(1.1 - 3.2)	0.028	
Male (+ missing)				
Phase 1 - Area deprivation (SIMD) of home address				0.185
less deprived (+ missing)	1.5	(0.8 - 2.6)	0.185	
20% most deprived				
Phase 1 - ITERS total score				0.455
Not observed	0.6	(0.2 - 2.3)	0.460	
6+	0.4	(0.1 - 1.3)	0.118	
5 - <6	0.5	(0.2 - 1.3)	0.144	
4 - <5	0.7	(0.3 - 1.9)	0.518	
<4				
Phase 1 - Home learning environment scale				0.007
Highest quartile (most frequent activities)	2.7	(1.3 - 5.4)	0.007	
Other (+ missing)				
n = 267	Naglekerke R-square = 0.19			

Table D3: Logistic regression model of at least four domains on schedule on the Ages and Stages Questionnaire Phase 3, Eligible 2s (using Phase 3 predictor variables)

	Odds ratio	Confidence interval	Sig. (compared with base)	Sig. (overall)
Sex of child				0.350
Female	1.3	(0.7 - 2.3)	0.350	
Male (+ missing)				
Area deprivation (SIMD) of home address				0.509
3/4/5 - less deprived	0.8	(0.5 - 1.5)	0.509	
1/2 - 40% most deprived (+ missing)				
Long term health condition				0.003
No (+ missing)	3.1	(1.5 - 6.6)	0.003	
Yes				
Home learning environment scale				0.019
Highest quartile (most frequent activities)	3.3	(1.5 - 7.1)	0.003	
3rd (+ missing)	1.4	(0.7 - 2.7)	0.347	
2nd	1.2	(0.6 - 2.6)	0.577	
Lowest quartile (least frequent activities)				
n = 243	Naglekerke R-square = 0.11			

Table D4: Logistic regression model of at least four domains on schedule on the Ages and Stages Questionnaire Phase 3, Comparator 3s

	Odds ratio	Confidence interval	Sig. (compared with base)	Sig. (overall)
Sex of child				0.078
Female	1.5	(1.0 - 2.3)	0.078	
Male (+ missing)				
Area deprivation (SIMD) of home address				0.135
3/4/5 - less deprived (+ missing)	1.4	(0.9 - 2.1)	0.135	
1/2 - 40% most deprived)				
Language usually spoken at home				0.072
English only	1.7	(1.0 - 3.2)	0.072	
Other languages (including English and other languages)				
Highest qualification of respondent				0.002
Degree / HE	2.9	(1.6 - 5.1)	<0.001	
Upper school / post-school/pre-HE (Highers, HNC, etc.) (+ missing)	2.0	(1.2 - 3.5)	0.008	
None / lower school (Standard Grade, etc.)				
Child long-term health condition				0.223
No (+missing)	1.6	(0.8 - 3.3)	0.223	
Yes				
Parental long-term condition				0.054
No (+ missing)	1.7	(1.0 - 3.0)	0.054	
Yes				
n = 515	Naglekerke R-square = 0.10			

Table D5: Logistic regression model of close to average total difficulties score on the Strengths and Difficulties Questionnaire Phase 3, Eligible 2s (using Phase 3 predictor variables)

	Odds ratio	Confidence interval	Sig. (compared with base)	Sig. (overall)
Sex of child				0.470
Female	1.2	(0.7 - 2.0)	0.470	
Male (+ missing)				
Area deprivation (SIMD) of home address				0.348
3/4/5 - less deprived	1.3	(0.7 - 2.4)	0.348	
1/2 - 40% most deprived (+ missing)				
Long-term health condition				0.098
No (+missing)	1.7	(0.9 - 3.1)	0.098	
Yes				

n = 253 Naglekerke R-square = 0.02

Table D6: Logistic regression model of close to average total difficulties score on the Strengths and Difficulties Questionnaire Phase 3, Comparator 3s

	Odds ratio	Confidence interval	Sig. (compared with base)	Sig. (overall)
Sex of child				0.020
Female	1.6	(1.1 - 2.5)	0.020	
Male (+ missing)				
Area deprivation (SIMD) of home address				0.002
3/4/5 - less deprived (+ missing)	2.1	(1.3 - 3.3)	0.002	
1/2 - 40% most deprived)				
Ethnic group				0.026
Non-white	0.4	(0.2 - 0.9)	0.026	
White (+ missing)				
Long-term health condition				0.148
No (+ missing)	1.8	(0.8 - 4.1)	0.148	
Yes				
Confusion, hubbub and order scale (CHAOS)				0.029
Lowest/middle tertile (least chaotic) (+ missing)	1.6	(1.1 - 2.5)	0.029	
Highest tertile (most chaotic)				
Total hours of childcare (formal and informal)				0.029
> 18	1.6	(1.1 - 2.5)	0.029	
Up to 18				

n = 518 Naglekerke R-square = 0.11

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.



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