

# Changing the Life Trajectories of Australia's Most Vulnerable Children

Report No. 1

Participants in the Trial of the Early Years Education Program

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# Report on Participants in the Trial of the Early Years Education Program

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# Executive summary

## Overview of main findings

This report describes the characteristics and family backgrounds of children who are participants in the Randomised Controlled Trial (RCT) of the Early Years Education Program (EYEP). EYEP is targeted at the particular needs of children who in their early years experience significant family stress and social disadvantage, including risk of abuse or neglect. The situation of children in the EYEP trial and their primary caregivers is compared with representative samples of children from all households and low socio-economic status (SES) households in Australia.

Even relative to children living in low SES households, children participating in the EYEP trial are highly disadvantaged. EYEP trial participants had lower birth weight, and at the time of enrolment in the trial when aged between zero and three years, had compromised language, motor skill and adaptive behaviour development. They were much more likely to live in a jobless household than children in low SES households, and as a result, average income in their households was lower.

The primary caregivers of children in the EYEP trial have fewer personal and social resources available to face the challenges of parenting compared with caregivers in low SES households. They are more likely to be young parents, have less financial resources, and most are not participating in the labour force. The number of stressful life events which are beyond the primary caregiver's control was extraordinarily high, which results in a higher likelihood of suffering severe psychological stress. These life stresses are being managed alongside living with scarce financial, family and social capital.

The compromised developmental outcomes for infant and toddler EYEP trial participants, the high levels of psychological distress experienced by their primary caregivers, and the number of stressful life events happening to their families, provides a compelling argument for the need to remove all barriers to these children having access to high quality therapeutic early education and care. High levels of day to day stress and

unpredictability drain the limited available practical and emotional resources for families to navigate access to services for their children. What might look like lack of motivation or investment in their children can be more accurately be described as a family system on overload.

## Background

The objective of EYEP is to ensure that the children who participate in the program arrive at school developmentally and educationally equal to their peers. The program has a dual focus: first, addressing the consequences of significant family stress on children's brain development; and second, redressing learning deficiencies.

Children who participate in EYEP receive three years (50 weeks per year and 25 hours per week) of care and education. Key features of EYEP are high staff/child ratios, qualified staff and a rigorously developed curriculum. A relationship-based pedagogy, informed by infant mental health theories and practice (including attachment and trauma theory) to include a focus on behavioural and emotional dysregulation, is used to ensure that children are more available for learning.

The impact and net benefit to society of EYEP are being evaluated through the Early Years Education Research Program (EYERP); otherwise referred to in this report as the 'EYEP trial'. Families with children who were eligible and consented to participate in the EYEP trial were randomly assigned into either the intervention group or control group. The intervention group remain in EYEP for three years (or until school entry if that time is reached prior to completion of three years in EYEP). The control group receive 'usual care', a mix of parental and guardian care as well as education and care provided by other local childcare centres or kindergartens, chosen by parents without direction from the trial. Enrolment of children into the EYEP trial commenced in early 2011 and concluded in early 2016.

The EYEP trial includes 145 children who were recruited when they were aged between zero and three years. The children come from 97 families. There are 72 children who

are in the intervention group and 73 in the control group, and respectively 49 and 48 families in these groups. There are 64 girls and 81 boys in the trial.

EYEP was initiated by the Children's Protection Society (CPS), an independent not-for-profit child welfare organisation based in the north-east of Melbourne. The program was designed and is being implemented by CPS in collaboration with Associate Professor Brigid Jordan and Dr Anne Kennedy. The EYEP trial (EYERP) is being undertaken by a consortium of researchers (who are authors of this report) with support from their institutions and in partnership with CPS. Funding for the research trial has come from CPS, government departments at the Commonwealth and State levels, philanthropic organisations, individual donors and the Australian Research Council.

## Data sources

The information in this report on participants in the EYEP trial is taken from the baseline (initial) collection of data on children and their primary caregivers and families. The baseline data collection included standardized tests of children's development and questionnaire data provided by a child's primary caregiver. It took place after a child's primary caregiver had consented to participate in the trial and after assignment to the intervention or control group. The primary caregiver for 95.5 percent of children was their mother. For about 85 percent of children the baseline data collection occurred within three months of consent to participate in the trial being given. There are nine children for whom no baseline data are available; and for some variables there were extra non-responses.

A single set of measures of the characteristics of EYEP trial participants is presented, without making a distinction between children in the intervention and control groups. This is because the objective in this report is to give an overall perspective on the children who met the eligibility conditions to participate in the EYEP trial and their primary caregivers.

Information on comparison samples of children and their primary caregivers is taken from the Longitudinal Study of Australian Children (LSAC), a major study which is following the development of 10,000 children and families throughout Australia. Data are weighted so that information is representative of the Australian population.

LSAC samples of comparison children considered are comprised of first, children from all households, and second, children from the bottom 25 percent of households ranked according to a SES index—referred to hereafter as low SES households.

## Participation in the EYEP trial

To be eligible for participation in the EYEP trial, children had to be aged from zero to three years, assessed as having two or more risk factors as defined in the Department of Human Services 2007 *Best Interest Case Practice Model*, be currently engaged with family services or child protection services and have early education as part of their care plan.

About 30 percent of children in the EYEP trial had two or three risk factors identified by referrers at the time of referral, 36 percent had four or five risk factors, and 34 percent had six to nine risk factors. The most frequent family risk factors for participants were 'attachment/relationship issues', 'mental health issues' and 'family violence, current or past'; and the most frequent parent risk factor was 'harsh, inconsistent discipline, neglect or abuse'.

## Development indicators for children

Children participating in the EYEP trial had much lower birth weight than the LSAC samples. Birth weight is classified as low (1500 to 2500g) or very low (less than 1500g) for 25.6 percent of children in the EYEP trial compared to 7.3 percent for children from the LSAC sample of low SES households and 5.7 percent for all households.

Development of children in the EYEP trial was assessed using the standardized Bayley Scales of Infant and Toddler Development, Third Edition (Bayley-III, Bayley 2006). The Bayley scales include five domains of development: cognitive, language, motor skills, socio-emotional and adaptive behaviour. On two of these domains, language development and adaptive behaviour development, much larger proportions of children in the EYEP trial exhibited delay than in the general population. For example, at the time of baseline data collection, children in the EYEP trial were three times more likely to have significant language delay than children in the general population, and more than six times as likely to have significant delay in adaptive behaviour. Proportions of children in the EYEP trial with

### Measures of psychological and life stress of the primary caregiver: Comparison between EYEP and LSAC samples

	EYEP	LSAC: Low SES	LSAC: All
K6: Percent with severe psychological stress	25.8	4.4	2.6
Percent with a major financial crisis: Past 12 months	32.0	18.8	12.8
Percent had problems with the police and a court appearance: Past 12 months	15.3	4.0	1.7

### Labour force status and household income: Comparison between EYEP and LSAC samples

	EYEP	LSAC: Low SES	LSAC: All
Labour force status: Percent of the primary caregivers unemployed or not in the labour force	89.0	70.7	48.5
Disposable household income: Percent less than \$250 per week (\$ 2016 qtr. 1)	27.4	12.9	4.7

delay in cognitive development and socio-emotional development were similar to children in the general population.

#### Household type and characteristics of primary caregivers

Children participating in the EYEP trial were more likely to be living in a single parent household than the LSAC samples of children. At the time of baseline data collection, 27.6 percent of children in the EYEP trial were living with a single parent and no other adults and 21.6 percent with a single parent and other adults. This compares to the LSAC samples of children from low SES and all households where, respectively, in total 30.3 percent and 12.1 percent of children were living with a single parent.

The ages of the primary caregivers for children in the EYEP trial include higher proportions of younger (less than 25 years) and older (40 years and over) carers than for the sample from all households in LSAC. EYEP trial participants are more likely to have a primary caregiver who is an immigrant, and of the primary caregivers who are immigrants, a higher proportion had arrived in Australia in the previous five years compared to the LSAC samples of households. The proportion of households where a non-English language is the main language spoken at home is higher for EYEP trial participants (24.8 percent) compared to the LSAC samples of low SES and all households (19.5 and 16.6 percent respectively). Primary caregivers of children participating in the EYEP trial had lower levels of education attainment at the baseline data collection

than for the LSAC sample of all households, but higher attainment than for the low-SES LSAC sample.

Primary caregivers of children participating in the EYEP trial have much higher levels of stress than the LSAC samples of households. First, using the K6 measure of psychological distress, it is found that 25.8 percent of the primary caregivers of EYEP children are classified as having severe psychological distress, compared to only 4.4 and 2.6 percent for the LSAC samples of low SES and all households. Second, primary caregivers of children in the EYEP trial are much more likely to have experienced adverse events in the past twelve months. For example, compared to low SES households, in the past twelve months primary caregivers of children in the EYEP trial are about two times more likely to have had a major financial crisis, and four times more likely to have had contact with the police and a court appearance. Third, scores for primary caregivers of children in the EYEP trial on the Parenting Stress Index Life Stress Scale were extremely high compared to reference data. The median total score for the EYEP group is 15, more than double the median score of 6 for the reference population group.

#### Labour market participation and household income

A substantial gap in labour market participation existed between the primary caregivers of children participating in the EYEP trial and in the LSAC samples. Whereas 65.6 percent of children in the EYEP trial lived in a jobless household, even for children living in the LSAC sample of low SES households this proportion was only 35.5 percent.

Similarly, out of the primary caregivers of EYEP children, 11 percent were employed at the time of baseline data collection and 78 percent were out of the labour force, whereas from low SES households 29.3 percent were in employment and 64.1 percent out of the labour force. During the biological mother's pregnancy with a child in the EYEP trial only 23.7 percent were employed, compared to 42.2 percent for the mothers of children living in LSAC low SES households.

Children participating in the EYEP trial live in households with lower levels of household income (adjusted for

household size and composition) than the average for children from LSAC low SES households. At the baseline data collection there were 27.4 percent of children in the EYEP trial who lived in households with an equivalent average income (2016 qtr. 1 dollars) below \$250 per week and 8.5 percent in households with above \$750 in weekly income. This compares to children living in low SES households where only 12.9 percent had equivalent weekly household income below \$250 and 11.1 percent had weekly income above \$750.

# 1. Introduction

This report describes the characteristics and family backgrounds of children who are participants in the Randomised Controlled Trial (RCT) of the Early Years Education Program (EYEP). The situation of children in EYEP and their primary caregivers is compared with representative samples of children from all households and low socio-economic status (SES) households in Australia using the Longitudinal Survey of Australian Children (LSAC).

Understanding the background of the children and their families who are participating in the EYEP trial is important for several reasons:

- **To validate the objective to target EYEP at children who are vulnerable and from highly disadvantaged backgrounds.** EYEP is intended to address the specific problems of vulnerable and at-risk children. Hence, an important criterion for judging the success of the trial of EYEP is whether the eligibility conditions and recruitment process have resulted in participants in the trial being from that group of children. By comparing participants in the EYEP trial to the whole population and to the low SES population of children in Australia it is possible to establish the extent to which targeting at vulnerable and at-risk children has been achieved.
- **To know the population of children for whom the findings from the EYEP trial might be relevant.** It is increasingly recognised that RCT findings can be highly context-dependent (for example, Deaton and Cartwright, 2016, p.40; Shonkoff and Fisher, 2013, p.1632). That is, the findings from an evaluation of the impact of a social program are likely to depend on aspects such as the characteristics of the population

on whom the program was trialled, the organisation that implemented the program, and general economic conditions. That the findings from a RCT are context-dependent has important implications for their transferability. For example, where a social program has been found to have a positive impact, it is most believable that the same impact would be achieved with a new population group, when that group has similar characteristics to the participants in the original trial. Therefore, in order to understand the potential transferability of EYEP, it is essential to have a precise knowledge of the characteristics of the children who have participated in the trial.

Section 2 gives a brief overview of EYEP and the RCT trial. Section 3 describes the main data sources and provides summary information about the samples of children from the EYEP trial and LSAC. Information on characteristics of the children and their families is presented in the next two sections—in section 4 on children and in section 5 on their primary caregivers and families. Section 6 presents concluding comments.

EYEP was initiated by the Children's Protection Society (CPS), an independent not-for-profit child welfare organisation based in the north-east of Melbourne. The program was designed and is being implemented by CPS in collaboration with Associate Professor Brigid Jordan and Dr Anne Kennedy. The EYEP trial (EYERP) is being undertaken by a consortium of researchers (who are authors of this report) with support from their institutions and in partnership with CPS. Funding for the research trial has come from CPS, government departments at the Commonwealth and State levels, philanthropic organisations, individual donors, and the Australian Research Council.



## 2. Overview of EYEP and the research trial

### An at-risk population

EYEP is a model of early years education and care targeted at the particular needs of children who experience significant family stress and social disadvantage, including risk of abuse or neglect. As one indication of the size of the at-risk population in Australia, it has been estimated that in 2015–16 there were 52,300 pre-school children receiving child protection services (Australian Institute of Health and Welfare, 2017, table S4).

Development in infancy and early childhood occurs at a more rapid pace than any other time of life. It is now well established that exposure to physical, emotional and/or sexual abuse and traumatic experiences early in life therefore can have profound long-term adverse effects on brain development, including emotion regulation capacities and ability to cope with stress (Perry, 2002; Shonkoff, 2012; Center on the Developing Child, 2016a, pp.7–12). Disruption to brain development in turn affects the ability to learn, with recent studies for example showing that self-regulation is linked to the development of literacy and numeracy skills (Raver et al., 2011).

When children fall behind in their development of cognitive and social skills early in life, this disadvantage is likely to become entrenched in later years. This happens because skill development is dynamic and hierarchical. Children who miss out at an early age lack the necessary building blocks and foundation for subsequent learning (Heckman, 2008; and for an overview see Tough, 2016, pp.48–52). Children with deficiencies in their cognitive and social skills before the age of five are therefore likely to have these deficiencies persist into later life, and become the basis of problems such as low education attainment, unemployment, teenage pregnancy, and involvement in crime. Early adversity has also been linked to physiological disruptions such as alterations in immune function (for example, Bierhaus et al., 2003; Currie and Spatz-Widom, 2010; Nicholson et al., 2010), to an increased risk of lifelong physical and mental health problems, including major depression, heart disease and diabetes (Center on the Developing Child, 2016b, p.6; Campbell et al., 2014), and to

a variety of health-threatening behaviours in adolescence and adulthood (for example, Rothman et al., 2008; Caspi et al., 2016).

Addressing the problem of inequality in childhood skill development is widely agreed to require extra education and care for at-risk children. At the same time, there is strong evidence that mainstream early childhood education and care is not sufficient to remedy the developmental delay of at-risk children. In a review article in *Science*, the renowned educationalist Jack Shonkoff (2011, p.982), argued that whereas most current programs for children from disadvantaged backgrounds focus on providing enriched learning experiences for children and parenting education for mothers, a better approach for redressing inequalities in skill development is likely to be ‘by linking high-quality pedagogy to interventions that prevent, reduce, or mitigate the disruptive effects of toxic stress on the developing brain.’

Furthermore, at-risk children in Australia, who potentially would benefit substantially from education and childcare, seem least likely to be able to access it. The situation in Victoria illustrates this problem. Whereas over 90 per cent of pre-school children are enrolled in government-funded kindergarten programs, analysis in 2007 by CPS of children aged zero to five years in its Family Support program found that only 16 per cent of Child FIRST (Family Information Referral Support Team) clients had experienced some form of early childhood education and care services, and only 50 per cent of four-year olds were enrolled in kindergarten programs. A report by the Victorian Auditor-General (2011) also concluded that the Department of Education and Early Childhood Development ‘cannot demonstrate that early childhood services are accessible when and where needed, especially for vulnerable children.’

### About EYEP

EYEP has been designed to focus on the particular needs of children in the at-risk population. The program has a dual focus: first, addressing the consequences of significant family stress on children’s brain development; and second,

redressing learning deficiencies. The ultimate objective of EYEP is to ensure that vulnerable and at-risk children realise their full potential and arrive at school developmentally and educationally equal to their peers.

The foundation of EYEP is a holistic model of care and education within a childcare centre. The program involves direct intervention with a child to address his or her identified needs, reverse developmental delays, and reduce the impact of risk factors and adverse events. The basis for **care** in EYEP is an attachment-focused, trauma informed, primary-care model which recognises the significance of respectful, responsive relationships for every child's learning and development. The purpose of the primary care model is to encourage the fostering of significant attachments for children who are likely to be experiencing disrupted and compromised attachment relationships in their home environments. The **education** model in EYEP is a pedagogically-driven reflective teaching model that is child-focused and built on the *National Early Years Learning Framework* of 'Belonging, Being and Becoming' (DEEWR, 2009). Each child has individual learning goals developed in partnership with families. Educators plan a curriculum using play-based approaches and intentional teaching to support each child's learning and development across learning outcomes in the *Early Years Learning Framework*.

Children who participate in EYEP receive three years (50 weeks per year and 25 hours per week) of care and education. Key features of EYEP are high staff/child ratios (1:3 for children under three years, and 1:6 for children over three years), qualified staff, a rigorously developed curriculum, and the use of relationship-based pedagogy. An innovative feature of the program is a trans-disciplinary model with an in-house infant mental health consultant as an integral team member, and family support and early childhood curriculum consultants. The infant mental health consultant conducts an assessment with each child as they commence in EYEP and this understanding of the individual child's emotional functioning, behavioural regulation and the parent-child attachment relationship contributes to the individualised learning plan and the relational pedagogical strategies developed for the child.

The EYEP model actively engages with parents to encourage their continued participation in the program, as well as to enhance their usage of all health, educational

and social services available in the community, in order to improve outcomes for their children. Care team meetings with parents and family support/child protection workers and the Early Years Educators (primary worker for the child) take place every 12 weeks.

EYEP also addresses a variety of barriers that might otherwise exist for families taking advantage of support services—such as affordability, where families' beliefs place low priority on early education services, and interpersonal barriers including attitudes on the part of service providers that might compromise engagement (Centre for Community Child Health, 2011; see also Turnbull et al., 2000).

Conditions for eligibility for participation in EYEP were chosen with the aim of targeting the program at at-risk young children. Children were required to be aged from zero to three years, assessed as having two or more risk factors as defined in the Department of Human Services 2007 *Best Interest Case Practice Model*, and be currently engaged with family services or child protection services and have early education as part of their care plan. The list of risk factors consists of 24 'Child and family risk factors' and nine 'Parent risk factors'. Risk factors include having teenage parents, parental substance abuse, parental mental health difficulties, and the presence of family violence. A full list of risk factors is included as Appendix 1. Referrals of potential EYEP participants were made by caseworkers from clients of child welfare services including (but not exclusively from) Child FIRST and Child Protection within the Victorian Department of Health and Human Services.

## About the RCT

The impact and net benefit to society of EYEP are being evaluated through the Early Years Education Research Program (EYERP); otherwise referred to in this report as the 'EYEP trial'. The EYEP trial is approved by the University of Melbourne Human Research Ethics Committee (HREC 1034236). This is the first RCT of an early years care and education intervention in Australia (Tapper and Phillimore, 2012; for more details on the EYEP RCT, see Jordan et al., 2014).

A pilot of the EYEP trial was conducted in 2010 in order to refine the service model, the survey and measurement methods, and the research process. Enrolment of

children into the EYEP trial commenced in early 2011 and concluded in early 2016.

Families with children who were eligible and consented to participate in the EYEP trial were randomly assigned into either the intervention group or to the control group. For families with multiple children in the trial all their children have been assigned to either the intervention or control group.

The intervention group remain in EYEP for three years (or until school entry if that time is reached prior to completion of three years in EYEP). The control group receive 'usual care', a mix of parental and guardian care as well as education and care provided by other local childcare centres or kindergartens. The usual care is determined by the choice of the child's parent(s) without any direction.

Some key information on the EYEP trial participants is presented in Table 1. There are 145 children who were recruited into the EYEP trial when they were aged between zero and three years. There are 64 girls and 81 boys, and the children come from 97 families. There are 72 children who are in the intervention group and 73 in the control group, and respectively 49 and 48 families in these groups.

Data are being collected on an extensive set of outcome measures for children and their primary caregivers at baseline, at yearly intervals for three years, and six months after commencing the first year of school. The research will evaluate the **impact** of EYEP by comparing outcome measures for children and their primary caregivers

**Table 1: Key descriptive information on children participating in the EYEP trial**

	Number	Percent
<b>EYEP participation: Children</b>		
Treatment	72	49.7
Control	73	50.3
<b>EYEP participation: Families</b>		
Treatment	49	50.5
Control	48	49.5
<b>Gender: Children</b>		
Female	64	44.1
Male	81	55.9

between the intervention group and the control group. Outcomes investigated will include:

1. Children's outcomes
  - Health and development outcomes
  - Level of academic ability and achievement
  - Emotional and behavioural regulation
2. Primary caregivers of children
  - Parenting practices
  - Engagement with neighbourhood and community services

Estimates of the net impacts of EYEP will be translated into estimated monetary values, and these benefits aggregated to compare against the program costs, to provide a **benefit-cost** evaluation.

### 3. Overview of descriptive information to be presented and data sources

Information on participants in the EYEP trial in this report is taken from the baseline (initial) collection of data on children and their primary caregivers and families. Baseline data collection took place after a child's primary caregiver had given consent to participate in the trial and after assignment to the intervention or control group. It included standardized tests of children's development and questionnaire data provided by a child's primary caregiver. Baseline data were generally collected a relatively short time after consent to participate was given—for about 85 percent of children within three months of consent to participate, for eleven percent between three to six months after consent, and for four percent more than six months after consent.

A single set of measures of the characteristics of EYEP trial participants is presented, without making a distinction between children in the intervention and control groups. This is because the objective in this report is to give an overall perspective on the children who met the eligibility conditions to participate in the EYEP trial (and their primary caregivers).

Baseline data on the characteristics of children and their primary caregiver are available for a maximum of 136 out of the 145 children who were recruited into the EYEP trial. There were a variety of reasons why baseline data could not be collected for nine children who enrolled into the EYEP trial—such as where children dropped out of the trial a short time after being enrolled (for example, due the children being placed in out of home care or with other carers who were unwilling to participate in the trial); for legal reasons; and where difficult circumstances meant that families were unable to participate in data collection at the time of their commencement in the trial.

There was additional non-response on some individual variables and data items in the baseline data collection. The main reason for this additional non-response was scheduling issues and time constraints—for example, where at an initial meeting with the primary caregiver it was not possible to complete all data collection and a follow-up meeting could not be scheduled; or where

children were not present at the EYEP centre at the time that had been scheduled for collection of direct observation measures. Other studies on populations of children and families with high levels of disadvantage have experienced similar difficulties in collecting complete information for all children (for example, St Pierre et al., 2005; US Department of Health and Human Services, 2010, pp. 2–19). Appendix 2 provides information on the sample sizes for all variables and data items presented in the report.

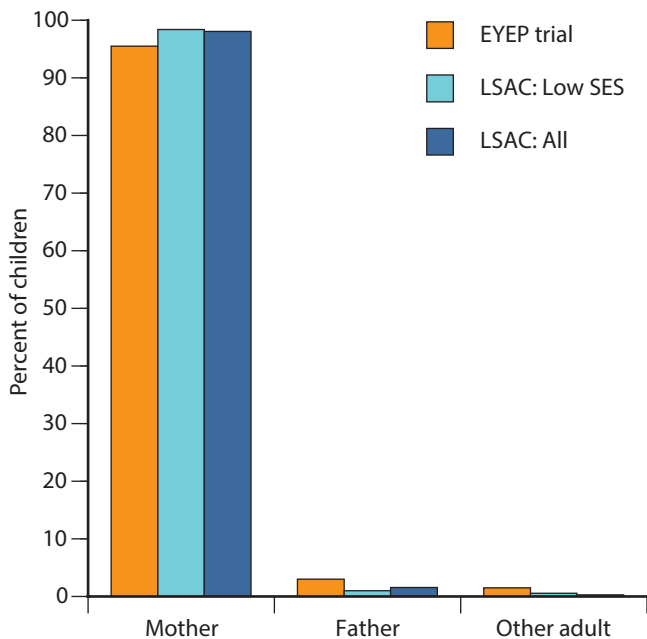
Information on comparison samples of children and their primary caregivers is taken from the Longitudinal Study of Australian Children (LSAC), a major study which is following the development of 10,000 children and families from throughout Australia. Data from waves 1 and 2 of B ('baby') cohort are used. Interviews for wave 1 were conducted in 2004 for children aged zero to one year, and for wave 2 in late 2006 and early 2007 for children who were two to three years. Data are weighted so that information is representative of the Australian population.

Comparisons of measures for children and their primary caregivers in the EYEP trial are made with two samples from LSAC—first, children from all households; and second, children from the bottom 25 percent of households ranked according to a socio-economic status (SES) index. The SES index is constructed from measures of annual family income, parental educational attainment and occupational status (Blakemore et al., 2009). The LSAC samples consist of 9,713 children from all households and 2,424 children from low SES households.

Information on the primary caregiver for children in the EYEP trial and in the LSAC samples is shown in Figure 1. For children in the EYEP trial the primary caregiver for 95 percent of children was their mother, for 3 percent was their father, and for 2 percent another adult. For children in the LSAC samples almost 100 percent had their mother as the primary caregiver.

The age at which the baseline data were collected from children in the EYEP trial and in the LSAC samples is

**Figure 1: Relation of primary caregiver to child**

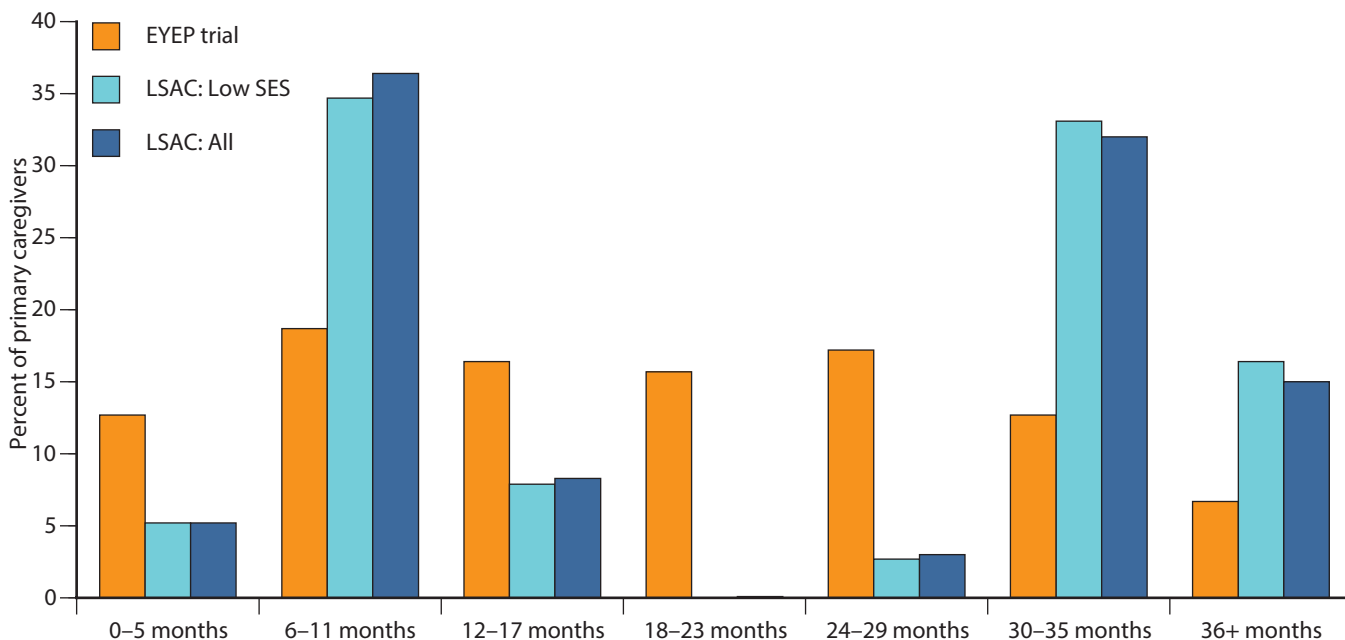


shown in Figure 2. For children in the EYEP trial the collection of the baseline data was relatively evenly distributed between zero and three and a half years.

(Participation in the EYEP trial required children to be aged zero to three years at the time of enrolment into the trial, but in some cases the subsequent baseline data collection then took place after they had turned three.) By contrast, data collection for children in the LSAC sample, which is a biennial survey, was bunched at ages between seven to twelve months and between 30 to 42 months.

A concern is that this difference in the distribution of age at baseline data collection between children in the EYEP trial and the LSAC sample might affect comparisons of characteristics of those children and their primary caregivers. For example, bunching of LSAC data collection at older ages might give the primary caregivers of those children greater opportunity to have re-entered employment after childbirth. Hence, as well as presenting direct comparisons of the characteristics of children and their primary caregivers, where it is relevant we undertake robustness analyses to test for the effect of controlling for the age at which the data were collected.

**Figure 2: Distribution of age of children at date of baseline data collection**



## 4. About children in the trial

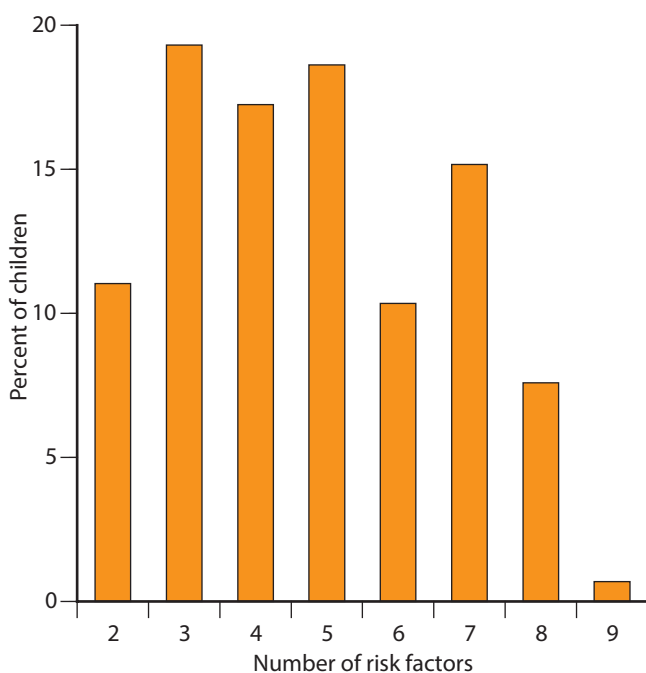
### Participation in the EYEP trial

Children were eligible to participate in the EYEP trial if they were assessed as having two or more risk factors as defined in the Department of Human Services 2007 *Best Interest Case Practice Model*. Assignment of the risk factors was done at the time of referral to the EYEP trial by the referring caseworker.

The distribution of the number of risk factors for children in the EYEP trial is shown in Figure 3. About 30 percent of children had two or three risk factors at the time of referral to the EYEP trial, 36 percent had four or five risk factors, and 34 percent had six to nine risk factors.

Figure 4 reports the incidence of the most frequently identified risk factors. The most frequent 'Child and family risk factors' for participants were 'attachment/relationship issues', 'mental health issues' and 'family violence, current or past'; and the most frequent 'Parent risk factor' was 'harsh, inconsistent discipline, neglect or abuse'. Appendix 3

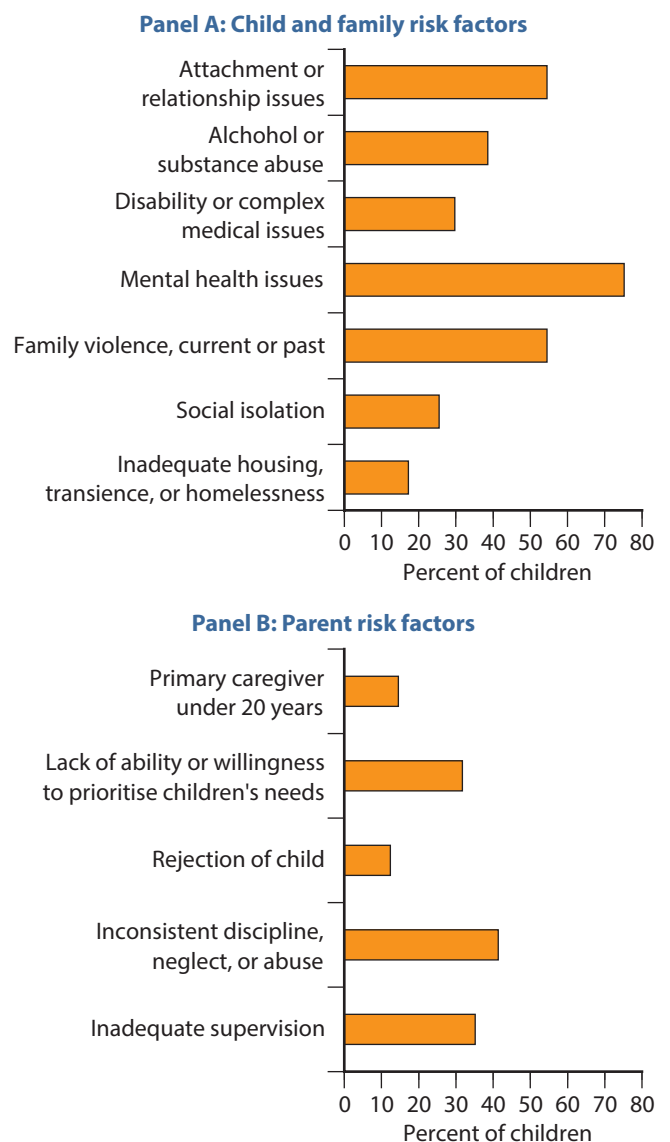
**Figure 3: Distribution of number of referrer-identified risk factors for children participating in the EYEP trial**



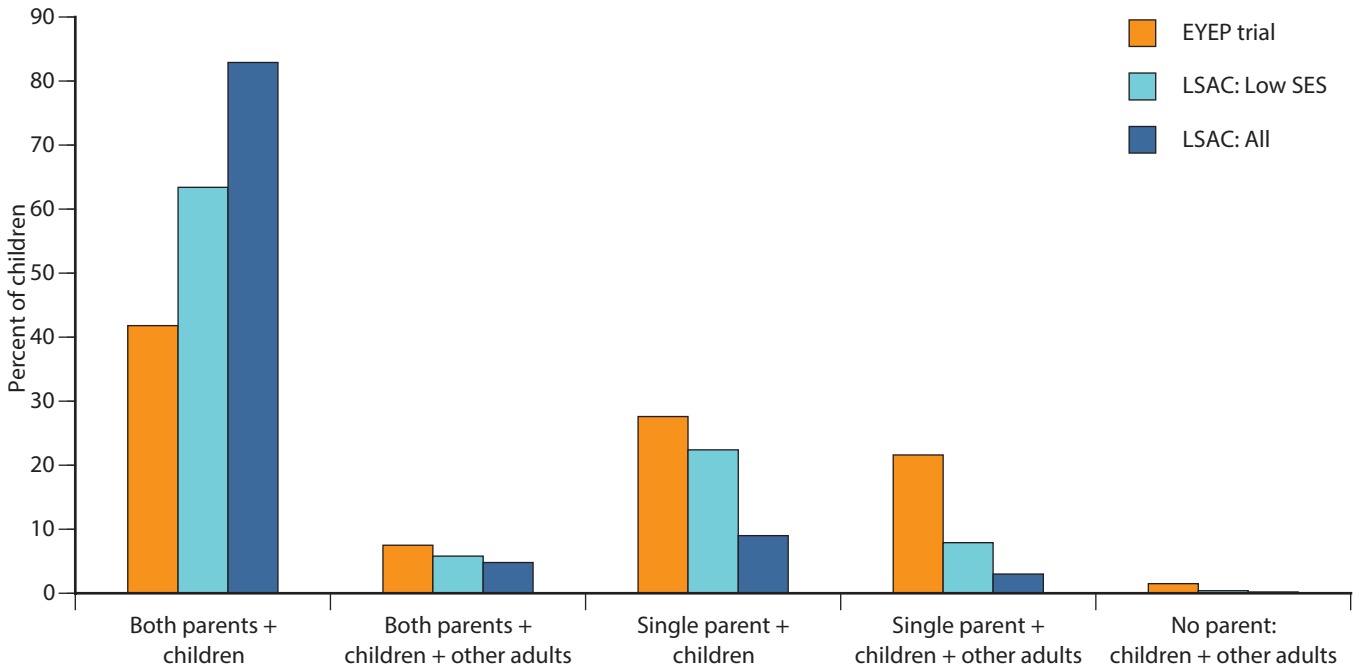
contains a list of the incidence of all risk factors for children in the EYEP trial.

Information on the type of household in which children were living at the time of data collection is shown in Figure 5. Children participating in the EYEP trial were more likely to be living in a single parent household than the LSAC samples of children. At the time of baseline data collection, 27.6 percent of children in the EYEP trial were living with a single parent and no other adults, and 21.6 percent with

**Figure 4: Incidence of referrer-identified risk factors for children participating in the EYEP trial**



**Figure 5: Household type**



a single parent and other adults. This compares to the LSAC samples of children from low SES and all households where, respectively, in total 30.3 percent and 12.1 percent of children were living with a single parent.

**Development indicators for children**

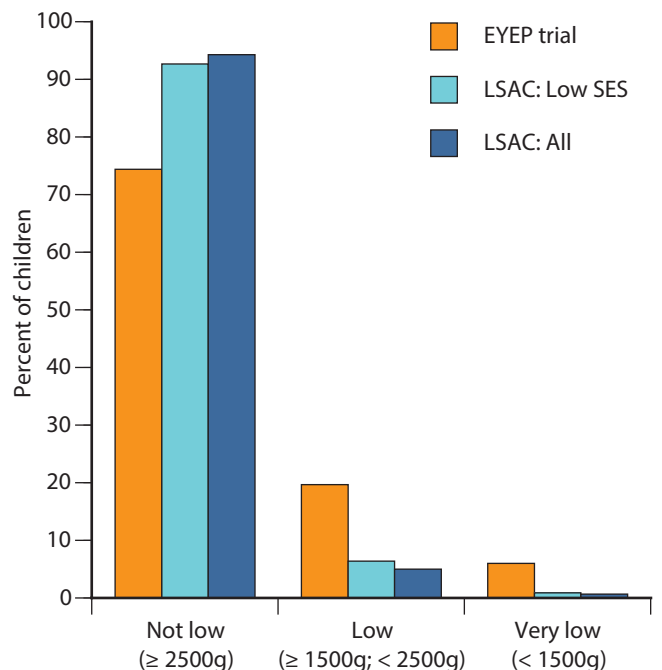
Information on the distribution of birth weight of children in the EYEP trial and in the LSAC samples is presented in Figure 6. Birth weight is classified into three categories: above 2500g (not low); between 1500g and 2500g (low); and below 1500g (very low or extremely low). Children participating in the EYEP trial have much lower birth weight than the LSAC samples. Birth weight is classified as low or very/extremely low for 25.6 percent of children in the EYEP trial compared to 7.3 percent for children from the LSAC sample of low SES households and 5.7 percent for all households.

Development of children in the EYEP trial was measured using the Bayley Scales of Infant and Toddler Development, Third Edition (Bayley-III, Bayley 2006.). This standardized test of development, conducted under standard conditions by a trained assessor, is designed for ages 1 to 42 months and is the most widely used measure of the development of infants and toddlers in clinical and research settings.

Information on five domains from the Bayley Scales is presented in this report. The Cognitive scale assesses

abilities such as sensorimotor development, concept formation, memory, and simple problem solving. The Language scale encompasses Receptive Communication (verbal comprehension, vocabulary) and Expressive Communication (babbling, gesturing). The Motor scale consists of Fine Motor (grasping, perceptual-motor integration, motor planning) and Gross Motor (sitting, standing, locomotion, and balance) areas of development.

**Figure 6: Birth weight of children**



**Table 2: Bayley scales of infant and toddler development**

Composite scores	EYEP sample distribution (%)					General population (Normal distribution)
	Cognitive	Language	Motor skill	Social-emotional	Adaptive behaviour	
≥ 130	0.8	0	1.6	7.1	2.6	2.28
< 130 & ≥ 115	1.6	0.8	2.4	14.3	3.5	13.59
< 115 & ≥ 85	82.3	65.3	66.9	65.2	54.4	68.26
< 85 & ≥ 70	12.1	24.2	25.0	7.1	26.3	13.59
< 70	3.2	9.7	4.0	6.3	13.2	2.28
Total	100.0	100.0	100.0	100.0	100.0	100.00
Number of observations	124	124	124	112	114	

Note: Scores 130 and above are in superior range; 115 and higher are above average, scores from 85 to 114 are in the average range, scores less than 85 indicate delayed development and scores less than 70 indicate significant delay.

Parent-report questionnaires are used to create a Social-emotional scale and an Adaptive behaviour scale.

Composite scores are calculated for each domain of development in the Bayley Scales using age-based norms. The scores are scaled with a range of 40 to 160, a mean of 100 and standard deviation (SD) of 15. A score of 100 defines the average performance of a given age group, and scores of 85 and 115 are one standard deviation below and above the mean respectively. About 68 percent of all children achieve a score between 85 and 115. A score between 70 and 85 identifies a delay in child development, and a score below 70 a significant delay in development.

Table 2 presents the distribution of scores in each of the developmental domains for children in the EYEP trial, as well as in the general population of children. Appendix 4 presents further descriptive information. On all but one of the domains, children in the EYEP trial have average scores well below the normative mean of 100.

For children in the EYEP trial the mean score for cognitive development was 92.3 (SD: 12.4). Almost one

in five children (15.3 percent) had delayed cognitive development, which is similar to the general population. Deficits in language development were more marked. The mean score for language development was 87.7 (SD: 12.5) which is close to one standard deviation below the normative mean. As well, 33.9 percent of children had delayed language development and 9.7 percent had significantly delayed development, considerably greater than the respective proportions of 15.9 and 2.3 percent in the general population. The mean score for motor skill development for children in the EYEP trial was 88.8 (SD: 13.0), and 29 percent had delayed motor development. The mean score for adaptive behaviour was 88.8 (SD: 17.6), approximately two-thirds of a standard deviation below the normative mean. Delay in adaptive behaviour development existed for 39.5 percent of children in the EYEP trial and significant delay for 13.2 percent of children, much higher than for the general population. The mean social emotional development score, 99.5, was essentially the same as the normative mean (SD: 18.5), with a smaller proportion of children (13.4 percent) having a delay in this domain.



## 5. About the children’s primary caregiver and family

### Characteristics of primary caregivers

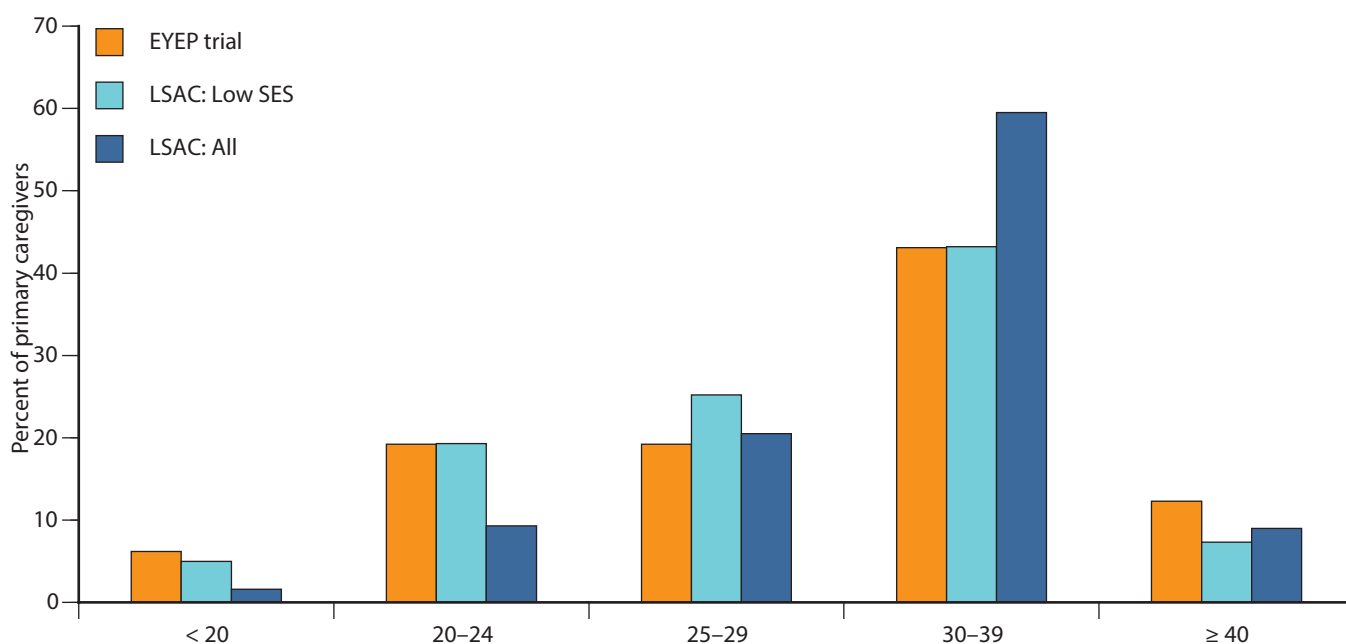
The distributions of ages of the primary caregivers for children in the EYEP trial and the LSAC samples are presented in Figure 7. The distribution for children in the EYEP trial has larger proportions of young (less than 25 years) and old (40 years and over) carers than for children in the LSAC sample of all households, but quite similar to primary caregivers of children from low SES households. For example, 25.4 percent of the primary caregivers of EYEP children were aged 24 years or less, 24.3 percent for children in the LSAC sample of low SES households, and only 10.9 percent for the LSAC sample of all households.

The country of birth of primary caregivers of children in the EYEP trial and LSAC samples is shown in Figure 8, and information on the main language spoken at home in Figure 9. Primary caregivers of children participating in the EYEP trial are less likely to be Australian-born (61.2 percent) than the LSAC samples of low SES households and all households (77.5 and 77.3 percent respectively). Amongst the primary caregivers who are immigrants, a higher proportion of the EYEP participants have been in Australia for less than 5 years (15.5 percent) compared

to the LSAC samples (4.4 and 4.8 percent). The higher proportion of primary caregivers of EYEP trial participants who are immigrants is also evident in the higher proportion for whom a non-English language is the main language spoken at home: 24.8 percent for EYEP trial participants compared to 19.5 and 16.6 percent for the LSAC samples.

A classification of primary caregivers by their highest level of education attainment is shown in Figure 10. Primary caregivers of children in the EYEP trial had lower levels of education attainment at the baseline data collection than for the LSAC sample of all households. For example, a larger proportion in the EYEP trial had not completed year 10 of high school, and a smaller proportion had a tertiary degree compared to the LSAC sample of all households. Compared to primary caregivers of children from low SES households, however, primary caregivers of children in the EYEP trial have much higher levels of education attainment. For example, in the EYEP trial a higher proportion of primary caregivers have a tertiary qualification and lower proportion have their highest education attainment as year 12 or below. The low level of education attainment of primary caregivers in the LSAC

Figure 7: Age distribution of primary caregivers

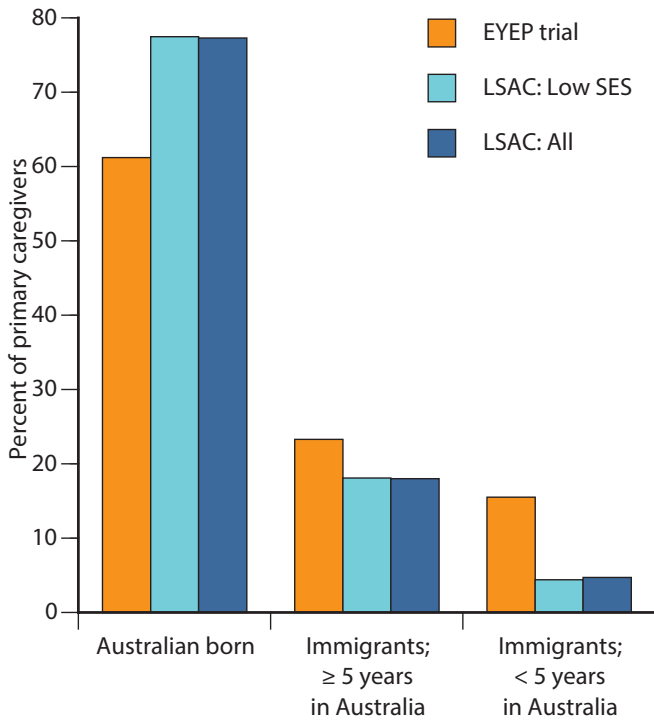


sample of low SES households is likely due to the heavy weighting that education attainment is given in classifying households by SES.

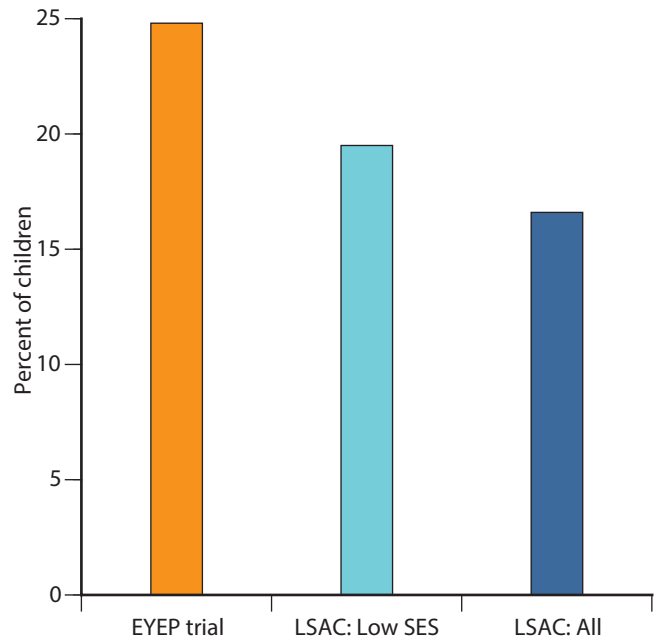
Extra information on education attainment of primary caregivers classified by their country of birth is presented in Appendix 5. For primary caregivers in the EYEP trial and LSAC samples the distribution of highest level of

education attainment is more dispersed for immigrants than Australian-born. In particular, higher proportions of immigrants than Australian-born primary caregivers have a tertiary degree, yet there is also a higher proportion who have not completed year 10 at high school. In interpreting the data on education attainment, it is important to keep in mind that the tertiary qualifications of immigrants are not always recognised in Australia.

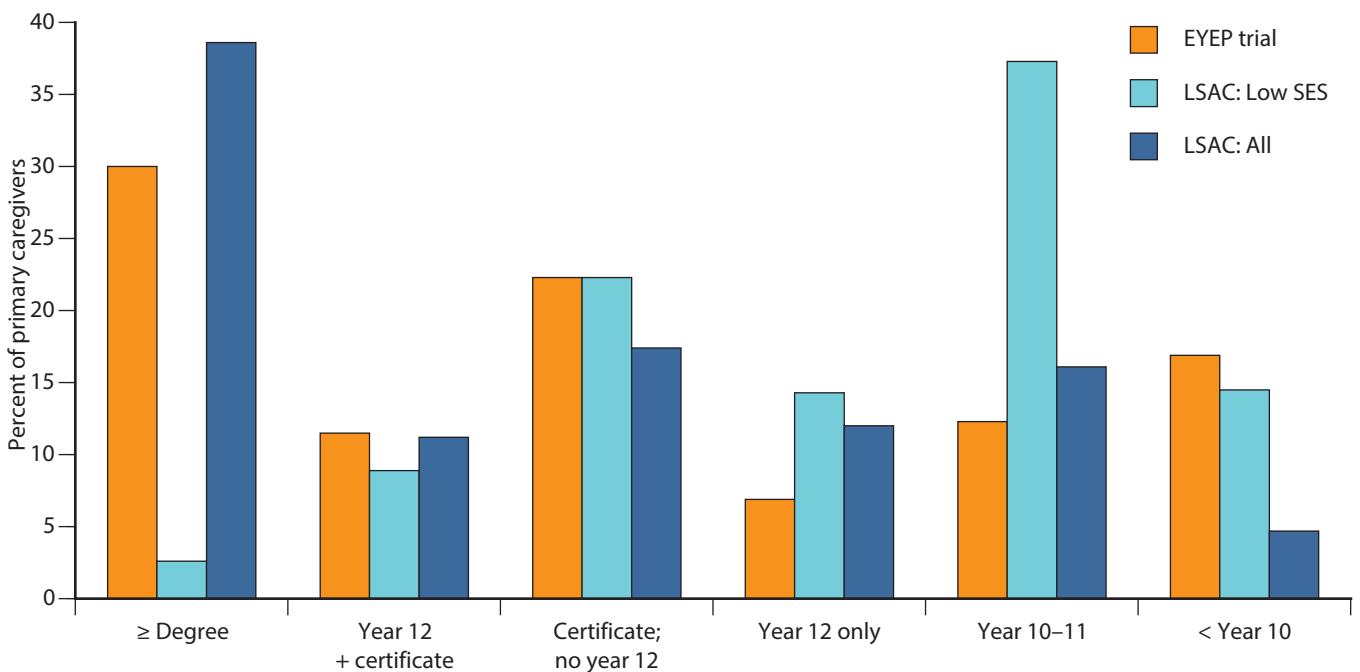
**Figure 8: Country of birth of primary caregivers**



**Figure 9: Language other than English is main language spoken at home**



**Figure 10: Education attainment of primary caregivers**



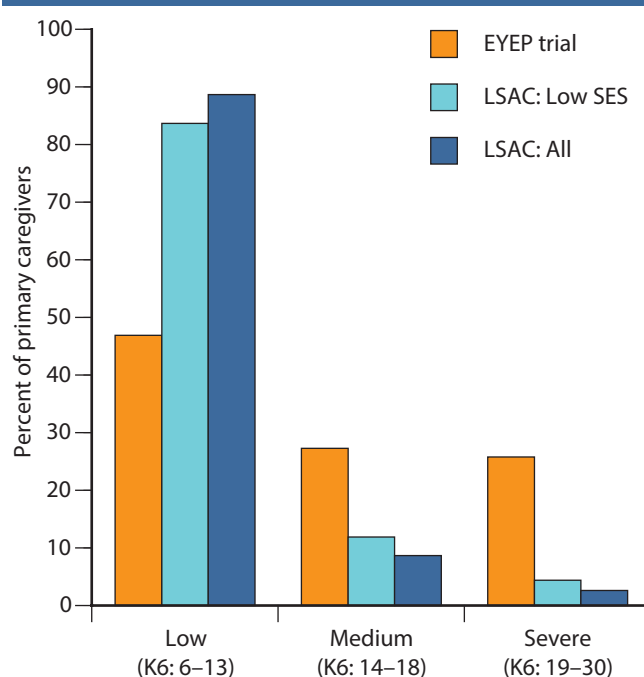
## Psychological well-being of primary caregivers

Information on the psychological distress of the primary caregiver at the time of baseline data collection is presented in Figure 11. Psychological distress is measured using the Kessler K6 screening scale (Kessler et al., 2002). The K6 scale is widely used, including in the 1997 Australian National Survey of Mental Health and Wellbeing (Furukawa et al., 2003). The scale has six questions about feelings over the last four weeks, with a 5-point item response scale for each question ranging from 'all of the time' to 'none of the time'. A K6 score is derived from summing the responses to each of the six questions. The outcomes shown in Figure 11 are derived from the K6 measure as follows: Low = 6–13; Medium = 14–18; and Severe = 19–30.

Primary caregivers of children participating in the EYEP trial clearly have higher levels of psychological distress than the LSAC samples from all households and low SES households. For example, 25.8 percent of the primary caregivers of EYEP children are classified as having severe psychological distress, compared to only 4.4 and 2.6 percent respectively for the LSAC samples of low SES and all households.

Information on the incidence of adverse circumstances experienced by the primary caregiver and their immediate family in the previous twelve months is obtained from twelve questions on life events that are taken from LSAC. The events range from personal problems with family or relatives, to experiencing physical injury or illness, through to contact with police and a made court appearance.

**Figure 11: Psychological distress of primary caregivers**



Responses to eight of these questions for primary caregivers in the EYEP trial and in LSAC are presented in Table 3. Life events related to job loss or job stress are not reported in the table as so few of the primary caregivers of children in the EYEP trial were employed at the time of baseline data collection.

It is evident that the primary caregivers of children in the EYEP trial are living with high levels of stress. With the exception of illness or injury the adverse events in Table 3 are experienced by this cohort at many times the rates for

**Table 3: Incidence of adverse life events in previous 12 months, primary caregivers**

	EYEP (%)	LSAC: Low SES (%)	LSAC: All (%)
You had a serious problem with a close friend, neighbour or relative	44.0	15.3	13.2
You had a major financial crisis	32.0	18.8	12.8
A serious illness, assault, or injury happened to a close relative	26.4	17.6	17.0
Something you valued was lost or stolen	24.8	9.3	6.2
You broke off a romantic relationship	23.2	9.0	3.6
Someone in household had a drug use/ alcohol problem	21.6	6.3	3.5
You suffered serious injury or assault	16.7	7.4	6.6
You had problems with the police and a court appearance	15.3	4.0	1.7

primary caregivers for children from low SES households in the LSAC cohort. For example, compared to low SES households, in the past twelve months primary caregivers of children in the EYEP trial are two and a half times more likely to have broken off a romantic relationship, three times more likely to have had a serious problem with a family member or relative, and four times more likely to have had contact with the police and made a court appearance.

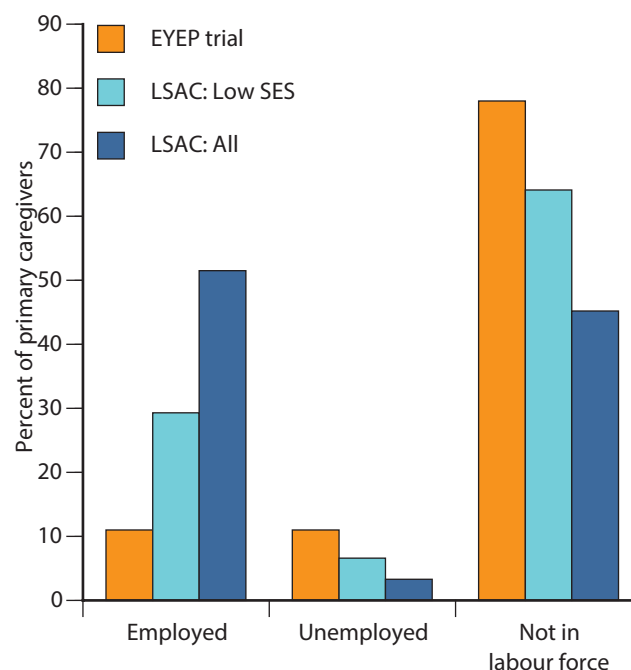
Primary caregivers of children in the EYEP trial also completed the 19 item Life Stress (LS) scale of the Parenting Stress Index (PSI). This scale provides a numerical score describing the amount of parent stress caused by events and circumstances usually beyond the control of the parent and outside the parent-child relationship. The 19 items include events such as death of a close friend or immediate family members, a family member commencing at a new school or in a new job, or moving to a new location.

For primary caregivers of children in the EYEP trial the median total score on the LS scale was 15.0, more than double the median LS reference score of 6 (Abdin, 1995). As well, 43 percent of primary caregivers in the EYEP trial had a LS total score that placed them in the top 10 percent for the reference population. Only fourteen percent had a LS total score in the range of the bottom 50 percent for the reference population. Hence, the LS scores also indicate that primary caregivers for children in the EYEP trial are living with extremely challenging personal and social circumstances.

### Labour market participation and household income

There is a substantial gap in labour market participation between the primary caregivers of children in the EYEP trial and the LSAC samples. A variety of measures can be used to make this point. Figure 12 shows the labour force status of the primary caregivers at the time of data collection, distinguishing between employment, unemployment, and out of the labour force. Table 4 presents information on the percentage of children living in a jobless household, and on the percentage of children whose biological mother was working during pregnancy. A household is defined to be jobless where no adult in the household was employed; so, for example, in a single parent household the employment status of the child's other parent is not taken into account.

**Figure 12: Labour force status of primary caregivers**



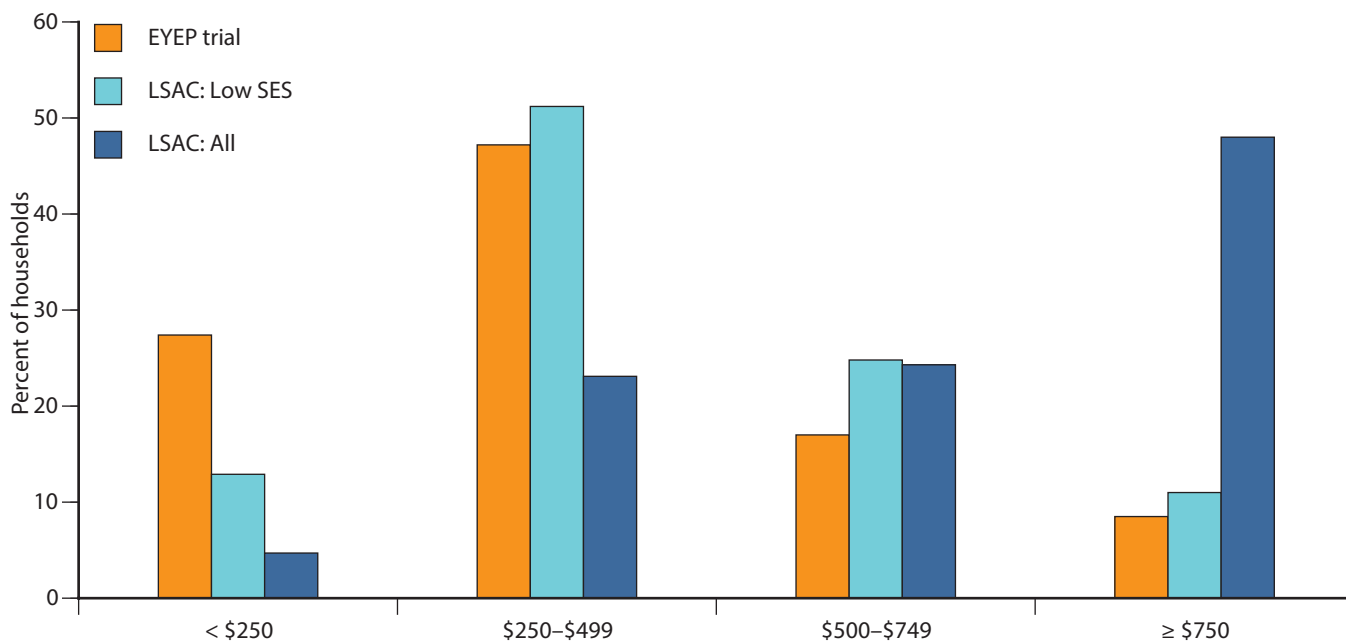
**Table 4: Other measure of labour market outcomes of primary caregivers**

	Child lives in jobless household	Biological mother worked during pregnancy (%)
EYEP trial	65.6	23.7
LSAC: Low SES	35.5	42.2
LSAC: All	4.5	61.5

Out of the primary caregivers for EYEP children, at the time of baseline data collection, 11 percent were employed and 78 percent were out of the labour force. This compares to low SES households where 29.3 percent were in employment and 64.1 percent out of the labour force. A similar pattern is evident from looking at employment outcomes at the household level. Whereas 65.6 percent of children in the EYEP trial lived in a jobless household, even for children living in the LSAC sample of low SES households this proportion was only 35.5 percent. During pregnancy with a child in the EYEP trial 23.7 percent of biological mothers were employed, compared to 42.2 percent for the mothers of children living in low SES households.

A much lower likelihood of the primary caregiver (or other adult household members) being employed appears to contribute to a much lower average level of household

**Figure 13: Household equivalent weekly income (\$2016 quarter 1)**



income for children in the EYEP trial. Figure 13 presents information on the distribution of household weekly income. The information on household income has been normalised to adjust for differences in household size and composition; and income from different time periods has been adjusted to be expressed in terms of the 2016/quarter 1 price level in Australia.

At the time of baseline data collection children participating in the EYEP trial lived in households with lower levels of household income than children in low SES households. There were 27.4 percent of EYEP children living in households with an equivalent average income below \$250 per week and only 8.5 percent in households with above \$750 in weekly income. This compares to children living in low SES households where 12.9 percent had equivalent weekly household income below \$250 and 11.1 percent had weekly income above \$750.

### Robustness analysis

A range of differences between the characteristics of children and primary caregivers in the EYEP trial and from the LSAC sample of low SES households have been described thus far in the report. There are two main questions regarding the robustness of these findings. One question is whether the differences that have been found are statistically significant. A second question is whether the differences found for some variables might have been due to differences between the EYEP trial and LSAC sample

in the distributions of ages of children at which baseline data were collected.

Whether differences between children and primary caregivers in the EYEP trial and the LSAC sample of low SES households are statistically significant is assessed in two ways. First, a Pearson chi-squared test is applied to the unweighted EYEP and LSAC samples. Second, a probit model is used to test the relation between each of the characteristics examined in this report and whether children and their caregivers were in the EYEP or LSAC samples, with population weights applied to the LSAC sample. The results of these tests are reported in Appendix 6.

For almost all of the characteristics examined in this report it is found that the differences between the EYEP and LSAC samples are significantly different at the 1 percent level. The only exceptions are the age of the primary caregiver, where there is a significant difference at the 10 percent level using the Pearson test, but not the probit model; and household income, where the difference is not significantly different for either test at the 10 percent level.

Differences between the EYEP and LSAC samples in the age of children at the time of baseline data collection might have affected differences in three variables: whether the primary caregiver is employed, whether the child lives in a jobless household, and the K6 measure. For example, the older age of children in the LSAC sample might have made

it easier for their primary caregiver to be in employment. Robustness to the effect of differences in children's ages at the time of data collection is checked by estimating a set of probit models. Each probit model tests whether there is a relation between one of the three variables and whether children and their caregivers were in the EYEP

or LSAC samples, controlling for differences in children's ages. For all of the three variables it is found that there is a statistically significant difference between the EYEP and LSAC samples, even after controlling for differences between the samples in the age of children at the time of baseline data collection.

## 6. Conclusion

This report has presented a summary of the main characteristics of the children and their primary caregivers who are participating in the EYEP trial. It confirms that trial participants are the group at whom EYEP is targeted—children with substantial development delay living with high levels of family stress and social disadvantage.

Compared with children representative of the whole population or living in low SES households in Australia, EYEP trial participants had lower birth weight, and compromised language, motor skill and adaptive behaviour development at the time of enrolment in the trial (aged between zero and three years). In all their characteristics and circumstances the primary caregivers of children in the EYEP trial have less personal and social resources available to face the challenges of parenting, even compared to children living in low SES households. Primary caregivers for children in the EYEP trial are more likely to be young parents, have fewer financial

resources, and most are not participating in the labour force. The number of stressful life events beyond the parent's control was extraordinarily high. Many primary caregivers for children in the EYEP trial have severe levels of psychological distress.

The compromised developmental outcomes for infant and toddler EYEP trial participants, the high levels of psychological distress experienced by their primary caregivers, and the number of stressful life events happening to their families provides a compelling argument for the need to remove all barriers to these children having access to high quality therapeutic early education and care. High levels of day to day stress and unpredictability drain the limited available practical and emotional resources for families to navigate accessing services for their children. What might look like lack of motivation or investment in their children might more accurately be described as a family system on overload.

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# Appendices

## Appendix 1: List of risk factors to healthy child development

### Child and family risk factors

- Family violence, current or past
- Mental health issue or disorder, current or past (including self-harm or suicide attempts)
- Alcohol/substance abuse, current or past, addictive behaviours
- Disability or complex medical needs, eg. intellectual or physical disability, acquired brain injury
- Newborn, prematurity, low birth weight, chemically dependent, foetal alcohol syndrome, feeding/sleeping/settling difficulties, prolonged and frequent crying
- Unsafe sleeping practices for infants, eg. side or tummy sleeping, ill-fitting mattress, cot cluttered with pillows, bedding or soft toys which can cover an infant's face, co-sleeping with sibling or parent who is on medication, drugs/alcohol or smokes, using other unsafe sleeping place such as a couch or exposure to cigarette smoke
- Disorganised or insecure attachment relationship (child does not seek comfort or affection from caregivers when in need)
- Developmental delay
- History of neglect or abuse, state care, child death or placement of child or siblings
- Separations from parents or caregivers
- Parent, partner, close relative or sibling with a history of assault, prostitution or sexual offences
- Experience of intergenerational abuse/trauma
- Compounded or unresolved experiences of loss and grief
- Chaotic household/lifestyle/problem gambling
- Poverty, financial hardship, unemployment
- Social isolation (family, extended family, community and cultural isolation)
- Inadequate housing/transience/homelessness
- Lack of stimulation and learning opportunities, disengagement from school, truancing
- Inattention to developmental health needs/poor diet
- Disadvantaged community
- Racism
- Recent refugee experience

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### Parent risk factors

- Parent/carer under 20 years or under 20 years at birth of first child
- Lack of willingness or ability to prioritise child's needs above own
- Rejection or scapegoating of child
- Harsh, inconsistent discipline, neglect or abuse
- Inadequate supervision of child or emotional enmeshment
- Single parenting/multiple partners
- Inadequate antenatal care or alcohol/substance abuse during pregnancy

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### Wider factors that influence positive outcomes

- Sense of belonging to home, family, community and a strong cultural identity
  - Pro-social peer group
-

## Appendix 2: Number of observations by variable

Variable	Number of observations
Risk factors	145
Duration from consent to participate to baseline data collection	136
Age of child at date of baseline data collection	136
Birth-weight of child	117
Household type	134
Age of primary caregiver	130
Country of birth of primary caregiver	129
Education attainment of primary caregiver	130
Main language spoken at home	129
K6 measure	128
Questions on incidence of adverse life events	125 <sup>a</sup>
Parenting Stress Index Life Stress scale	123
Labour force status of primary caregiver	127
Whether household jobless	122
Biological mother worked during pregnancy	118
Household income	106

Note: <sup>a</sup> Except question on whether suffered serious injury or assault (N = 126) and question on whether has problems with police and made court appearance (N = 124).

## Appendix 3: Incidence of risk factors

Risk factor	Percent of sample
<b>Child and family risk factors</b>	
Attachment/relationship issues	54.4
Alcohol or substance abuse	38.6
Disability/Complex medical issues	29.6
Mental health issues	75.1
Family violence, current or past	54.4
Issues of new born baby, eg. prematurity, low birth weight, hard to settle	1.3
Unsafe sleeping practices for infants	0.6
Developmental delay	3.4
History of neglect or abuse	3.4
Separations from parents or caregivers	0.0
Family with a history of assault, prostitution or sexual offences	1.3
Experience of intergenerational abuse/trauma	4.8
Compounded or unresolved experiences of loss and grief	0.0
Chaotic household/lifestyle; Problem gambling	2.7
Poverty, financial hardship, unemployment	6.2
Social isolation (Family, community and cultural)	25.5
Inadequate housing/Transience/Homelessness	17.2
Lack of stimulation and learning opportunities	0.0
Inattention to developmental health needs	3.4
Disadvantaged community	1.3
Racism	0.0
Recent refugee experience	2.7
Other family/child issues	8.9
<b>Parent risk factors</b>	
Parent/Carer under 20 years of age	14.4
Lack of ability or willingness to prioritise child's needs	31.7
Rejection of child	12.4
Harsh, inconsistent discipline, neglect or abuse	41.3
Inadequate supervision	35.1
Single parenting/Multiple partners	6.8
Inadequate antenatal care or alcohol/substance abuse during pregnancy	0.0
Other parent risk factor	8.9

#### Appendix 4: Bayley Scale descriptive statistics

	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Median</b>	<b>Maximum</b>	<b>Minimum</b>
Cognitive	124	92.33	12.38	90	140	55
Language	124	87.67	12.54	89	124	47
Motor	124	88.76	13.01	88	133	46
Social emotional	112	99.50	18.46	100	140	55
Adaptive behaviour	114	88.82	17.60	90	141	46

#### Appendix 5: Education attainment of primary caregivers by immigrant status

	<b>EYEP</b>		<b>LSAC: Low SES</b>		<b>LSAC: All</b>	
	<b>Australian born</b>	<b>Foreign born</b>	<b>Australian born</b>	<b>Foreign born</b>	<b>Australian born</b>	<b>Foreign born</b>
Tertiary degree	17.1	48.0	1.9	5.2	37.0	44.1
Year12+certificate	10.5	12.0	8.7	9.9	11.0	12.0
Certificate but no year 12	31.6	10.0	24.5	13.6	19.3	10.6
Year 12 only	6.6	8.0	13.1	18.8	11.5	13.7
Year 10–11	19.7	2.0	39.2	30.9	17.1	12.7
Below year 10	14.5	20.0	12.6	21.6	4.1	6.8
Number of observations	76	50	1892	488	7530	2011

#### Appendix 6: Differences between EYEP and LSAC Low-SES Samples—Levels of statistical significance, p-values

<b>Variable</b>	<b>Pearson chi-squared test</b>	<b>Probit model: Wald chi-squared test</b>
Household type	0.000	0.000
Household income	0.119	0.173
Jobless household	0.000	0.000
Age of primary caregiver	0.088	0.209
Country of birth of primary caregiver	0.000	0.000
Education attainment of primary caregiver	0.000	0.000
Labour force status of primary caregiver	0.000	0.000
Biological mother employed during pregnancy	0.000	0.000
K6 measure	0.000	0.000
Birth-weight of child	0.000	0.000



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