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Changing the Life Trajectories of Australia's Most Vulnerable Children

EYEP replication trial report No. 1

Understanding the Participants in the EYEP Replication Trial

June 2025

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EYEP Replication Trial Baseline Report
Understanding the trial participants

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Acknowledgement

The Early Years Education Program (EYEP) was initiated by Kids First, previously the Children's Protection Society (CPS), an independent not-for-profit child and family services organisation based in the north- east of Melbourne which was founded in 1896. The program was designed and implemented by CPS in collaboration with Associate Professor Brigid Jordan and Dr. Anne Kennedy. The EYEP RCT was conducted by a multidisciplinary team led by Professor Jeff Borland from the University of Melbourne. A full list of contributors is included in the RCT reports which can be downloaded from https://melbourneinstitute.unimelb.edu.au/research/education/early-years-education.

The EYEP replication trial is led by Parkville Institute, a registered charity established to support infants and young children living with significant family stress and social disadvantage to enter school as confident and successful learners who are developmentally and educationally equal to their peers. The outcome evaluation of this trial (including this report) is conducted by the Melbourne Institute of Applied Economic and Social Research under the service agreement with Parkville Institute.

This study is funded by the Australian Government Department of Education; Victorian Department of Education; Paul Ramsay Foundation; The Bryan Foundation; The Berg Family Foundation; and The TDM Foundation; as well as in-kind contributions from the Parkville Institute and Melbourne Institute. The findings and views in this report, however, are those of the authors and should not be attributed to the funders, Parkville Institute, or the Melbourne Institute.

This report utilised data collected from the EYEP replication trial and the EYEP RCT. We are indebted to the children and families who have been willing to participate in the EYEP RCT and the EYEP replication trial. We express our gratitude to many staff members at the research children's centres for their expertise, care, professionalism, and assistance in data collection. We are grateful for Professor Jeff Borland's insightful discussions and comments on the report. We are thankful to Jane Sheehan for her excellent assistance in collecting data for the replication trial.

This study also uses part of questionnaires and unit-record data from Growing Up in Australia: Longitudinal Survey of Australian Children (LSAC). The LSAC questionnaires are the property of the Commonwealth Department of Social Services (DSS). LSAC is being undertaken in partnership between the Commonwealth Department of Social Services, Australian Bureau of Statistics (ABS), and Australian Institute of Family Studies (AIFS). The findings and views reported in this study should not be attributed to DSS, ABS, or AIFS.

[1] Yi-Ping Tseng and Nichola Coombs are the authors of this report. Sarah Fraser contributed to this study as research coordinator for 2 research children's centres and Taylor Ey is the database manager.

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Executive Summary

Background

The Early Years Education Program randomised controlled trial (EYEP RCT) demonstrated large and statistically significant positive impacts on children experiencing significant family stress and social disadvantage. This EYEP replication trial aims to assess whether the program can be successfully implemented in different contexts while maintaining its effectiveness. The research findings will inform recommendations for the future scale-up of the EYEP.

Study Design

Parkville Institute (PI) is implementing the replication trial across three centres: two in Victoria (one metropolitan, one regional) and one metropolitan site in Queensland. Following the original EYEP model, the program targets children aged 0-3 years experiencing significant family stress and social disadvantage. This study will answer three key questions.

1. Can the model successfully identify and engage its target population across different communities?
2. Will the intervention achieve improvement in children's developmental outcomes comparable to those demonstrated in the original RCT?
3. What factors enable or challenge successful program replication while maintaining model fidelity?

The research team at Melbourne Institute will focus on answering questions 1 and 2 and provide insights into question 3 from the data collection process and the analyses of outcome data. Changes in outcomes (6 domains) before and after one- and two-years' participation in the program will be compared with the outcomes of similar children who participated in the EYEP program in the original RCT.

Program fidelity will be formally assessed by PI. The findings will be collated by PI to provide recommendations for further scaling up of the program.

Implementation progress

The centres opened in a staggered manner between January 2023 and January 2024. Recruitment is still in progress for all centres. Recruitment involves sourcing referrals, conducting consent interviews with referred families to explain the program and research activities, and assisting families to complete the enrolment process if they consent to participate in the trial. After enrolment, children and their primary carers participate in orientation to ease children into regular attendance.

By 30 September 2024, a total of 120 children out of 160 eligible referrals (75%) had consented to participate. However, some children withdrew after consent: 41 withdrew prior to the orientation, and 23 withdrew after. As of 15 November 2024, 56 children were still enrolled in the program.

Data source and scope of this report

This baseline report focuses on the recruitment and engagement of families, that is, answering Research Question 1. Data used include:

- Referral information.

- Baseline data collected from parent interview and standardised child development assessment (Bayley Scales of Infant and Toddler Development) administered by child mental health professionals.
- Attendance records from centres.

Comparable information from the EYEP RCT and Longitudinal Survey of Australian Children (LSAC) are used as benchmarks. The LSAC sample is restricted to families with low socioeconomic backgrounds (the bottom 25% of families are ranked according to the socio-economic status (SES) index derived by the LSAC survey team).

This report uses data from participants in the replication trial who completed the consent interview by 30 September 2024. Late recruitments will be included in the updates presented in subsequent reports.

Summary of key findings

1. The recruitment process has reached the intended population:
    - Similar to the RCT, family background and the primary carer characteristics in the replication trial are far more disadvantaged than those of general low socioeconomic families. Compared with LSAC low-SES families with children aged under 3, the replication trial participants have more single-parent families (63% vs. 30%), a higher incidence of experiencing adverse events in the past 12 months (68.7% vs. 37.9%), and a larger proportion of primary carers classified as having severe psychological distress (22.9% vs. 4%).
    - A higher proportion of children in the replication trial were born with low birth weight compared with those in LSAC low-SES families (27.1% vs.6.7%)
    - Families in the replication trial present with an average of 5.96 risk factors, exceeding the RCT average of 4.85. The overall patterns of risk factors are similar to the RCT, with mental health issues being the most prevalent, followed by family violence and attachment or relationship issues.
    - At replication trial entry, the average standard scores for children's developmental measures (Bayley Scales) are substantially below the population average of 100 and significantly lower than those of the RCT cohort at trial entry for all assessed domains:
        - Cognitive (80.9 vs. 90.0)
        - Language (78.6 vs. 86.3)
        - Social emotional (83.2 vs. 95.8)
    - A larger proportion of children enter the program with significant developmental needs. Specifically, 73.2% of the cohort present with some form of cognitive or language delay, compared with 33.8% of the RCT cohort.
2. Early engagement and implementation insights:
    - The decentralised recruitment process led to variations in referral sources and participant vulnerability across trials. The replication trial had more referrals from health professionals and participants with disabilities/medical issues, whereas the RCT had more from child protection and more prevalent parenting risk factors. Strategies for future scaling should enable recruitment from diverse agencies addressing different family needs.

- Consent rates in the replication trial varied slightly by centre (71% to 84%) but were comparable to the 77% rate in the original RCT. Children with disabilities or complex medical issues were more likely to consent to participate, potentially reflecting these families' higher recognition of the need for specialised intensive education and care. Baseline assessment outcomes, compared with parent-reported child health conditions, suggest a possible underestimation of developmental issues by parents, indicating that increasing parents' awareness of children's developmental needs may increase parents' willingness to participate in the program.
- The proportion of consented children who began regular attendance ranged from 52% to 80% across centres, compared to 81% in the original RCT. The main known reasons for withdrawal were extreme family circumstances, relocation, and unsuitable hours. Families experiencing specific vulnerabilities in parent-child relationships and social support were more likely to remain engaged. Overall, those who stayed in the program exhibited higher total risk factors, including a greater proportion identified as being at risk of harm, compared to early withdrawals.
- The average duration from consent to regular attendance is 78 days. The lengthy interval from referral to program commencement reflects the complex circumstances and high rates of psychological distress and stressful life events faced by participating families compared to low-income families generally. Multiple attempts – sometimes up to 10 - were often needed to secure a successful consent interview, highlighting the need for flexible, persistent engagement strategies.
- Recruitment has not been completed within one year as initially planned at any of the three centres. However, given the complexity of participants' family circumstances and effort required to engage new families, a staggered recruitment schedule rather than filling all spaces in the first year can avoid overwhelming resources and maintain the ability to accept new referrals during each year of the program's 3-year cycle.

These findings demonstrate that although the model can successfully identify and engage its target vulnerable population across different communities, careful implementation is required to address local contexts and complex family circumstances. Establishing new centres, building referral networks, and cultivating trust with local services takes time. Engaging families necessitates patient, flexible, and inclusive approaches that accommodate their challenging life situations. Employing contextually responsive strategies is therefore vital for embedding centres within the local service ecology and enabling effective family engagement and retention in the intensive program.

Next Steps

The trial will continue to recruit participants. The current funding arrangement means that late recruitment children may not have a full 3-year intervention. Families have been made aware of this situation during the recruitment process. PI and the centres are working to secure further funding so that children recruited late can attend the funded program for three years. The centres will inform families at least three months prior to funded program ending and assist families with their preferred transition plan.

Child outcomes will be assessed annually. Two additional reports are planned, one assessing the 12-month follow-up outcomes and one assessing the 24-months outcomes. These reports will also provide rolling updates on baseline characteristics and outcomes when data on those late recruitments become available.

1. Introduction

Early childhood represents a critical period when adversity and trauma can profoundly impact development, with effects lasting throughout the life course. In Australia, nearly 50,000 pre-school aged children receive child protection services, highlighting a significant population experiencing family stress and social disadvantage (AIHW, 2024). Research has demonstrated that early exposure to adverse experiences can disrupt brain development, particularly affecting emotional regulation and learning capacity (Perry, 2002; Shonkoff, 2012). Without early intervention, these developmental disruptions often become entrenched, leading to persistent difficulties in education, employment, and health (Heckman, 2008).

The Early Years Education Program (EYEP) was developed as an evidence-based response to this challenge, providing intensive early education and care specifically designed to address the complex needs of children experiencing significant family stress and social disadvantage. The EYEP randomised controlled trial (EYEP RCT) conducted between 2010 and 2018 demonstrated that the program has large and statistically significant impacts on children's IQ, language, and social-emotional outcomes (Tseng et al. 2022).

While the RCT provided "proof of concept" that the EYEP model can significantly improve vulnerable children's developmental and learning trajectories, to make the program beneficial to more Australian children, a robust implementation framework is needed. It is well established that innovative social programs often suffer from `voltage drop' and do not achieve the same impacts for participants when scaled up possibly due to added complexity of heterogeneous target population, service providers and settings (Al-Ubaudli, et al. 2019). Therefore, members of the EYEP RCT research team further developed the replication framework with careful consideration of factors that might affect `voltage' when scaling a program.

The EYEP replication trial is being conducted across three children's centres to test the replication framework. The trial aims to assess whether the program can be successfully implemented in different contexts while maintaining its effectiveness. The evaluation design has several features that are not available in most evaluations of replicating or scaling up a program in the literature. First, a rich set of data is collected in this study. Data cover six domains of child and primary carer outcomes, family background, and risk factors that may affect children's developmental and learning outcomes. Second, we utilise unit record data collected from both the EYEP RCT and the replication trial in econometric modelling. The outcomes of the RCT treatment group will be used as a comparison to directly assess whether the intervention in the replication trial is as effective as in the RCT, taking into account participant characteristics. Third, information on the implementation process will also be well documented, and model fidelity will be formally assessed to cross-reference the findings of the outcome evaluation.

The findings from this replication trial will provide evidence on whether the model can be replicated in multiple centres in different communities and provide outcomes equivalent to those identified in the RCT. This evidence will be used to inform recommendations for a targeted stepped scale-up of the model as part of the suite of early childhood education and care services in Australia. It can also inform further policy development regarding interventions to assist vulnerable children. This research project will also contribute to the literature on implementation science and the service delivery of targeted early childhood interventions.

This baseline report is the first of the three reports of outcome evaluation. This report summarises the study design and assesses the outcomes of participant recruitment and engagement.

The remainder of this report is as follows. Section 2 summarises the EYEP model and the evidence from the EYEP RCT. Section 3 outlines the design of this replication study. Section 4 examines the progress of implementation to date and assesses population reach and engagement. Section 5 presents comprehensive analyses of baseline data comparing characteristics of participating children and families with both the original EYEP RCT and a broader sample of disadvantaged families from the Longitudinal Study of Australian Children (LSAC). The final two sections discuss the potential implications of the findings for early implementation and outline the next steps for the ongoing evaluation.

2. The Early Years Education Program randomised control trial

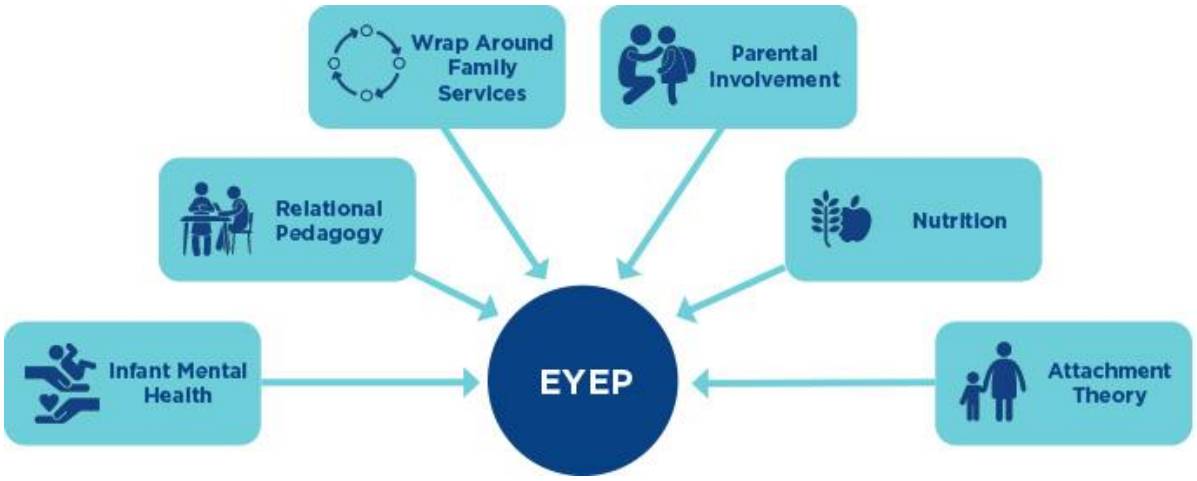
2.1 The Early Years Education Program (EYEP)

Early Years Education Program (EYEP) was initiated by Kids First, previously the Children's Protection Society (CPS), an independent not-for-profit child and family services organisation based in the northeast of Melbourne which was founded in 1896. The program was designed and implemented by CPS in collaboration with Associate Professor Brigid Jordan and Dr. Anne Kennedy. The structural and process quality elements of the model are described in Jordan and Kennedy (2019).

This innovative centre-based early years education and care program is specifically designed for children living with significant family stress and social disadvantages (Jordan and Kennedy, 2019). It has a dual focus, addressing the consequences of significant family stress on brain development and redressing learning deficiencies. The goal is to ensure that vulnerable children can enter formal schooling developmentally and educationally equal to their peers, equipped with the knowledge, skills, and attributes needed for successful ongoing learning.

The program delivers holistic care and education within a childcare setting informed by relational pedagogy, attachment theory, and trauma-informed care. It involves direct intervention with the child to address identified developmental and learning needs, mitigate the impact of adverse experiences, and reduce risk factors that can lead to poor developmental and learning outcomes. The care approach is attachment-focused and trauma-informed, emphasising the importance of building strong, responsive relationships with children. The primary educator model aims to foster significant attachment with caregivers, particularly for children whose home environments may include disrupted or compromised attachment relationships.

Figure 2.1 The EYEP model



Source: Tseng Y. and Borland J (2020)

Australia's National Early Years Learning Framework, Belonging, Being and Becoming (AGDE V2.0, 2022) and the National Quality Standard (ACECQA, 2018), provide the foundation principles and practices for the EYEP framework. Children's learning in the EYEP is supported through individualised goals, developed collaboratively with families, and delivered through play-based experiences across all developmental domains and learning outcomes.

The EYEP provides children with a program for five days a week, 50 weeks per year for three years. The program has high staff-to-child ratios (1:3 for children under three years old and 1:6 for older children) and employs qualified and experienced early childhood teachers and educators. An innovative aspect of the program is its multidisciplinary leadership team, which includes a full-time centre director, full-time pedagogy leader, part-time on-site infant mental health consultant, and part-time on-site family practice consultant. These professionals work together within an adaptive leadership framework (Heifetz et al 2009) to support and guide the work of the educators using a multidisciplinary approach and a children's best interest framework.

A critical component of EYEP is family engagement. The program encourages parents to participate actively in their children's education by meeting with their child's primary educator every twelve weeks to develop shared learning goals for the child. Families are welcome to bring support people to these meetings. The centre family practice consultant may also attend these meetings as well as supporting families' access to local health and community services and addressing any barriers to service usage such as affordability or interpersonal dynamics.

EYEP's comprehensive model of care and education is supported by monthly meetings attended by the senior program advisors[2] and the leadership team to ensure fidelity of the program. This structure ensures that the EYEP was continually checked for fidelity and implemented to meet the needs of at-risk children ethically and effectively. Through this rigorous, multidisciplinary approach, the EYEP aims to provide vulnerable children with the educational foundations needed to start school developmentally and educationally equal to their peers.

[2] In the RCT, Associate Professor Jordan and Dr. Kennedy and CPS senior staff attended the monthly meetings while in replication trial, senior program advisors include Associate Professor Jordan, Dr Kenndy and PI senior advisors.

2.2 The randomised controlled trial

The EYEP randomised control trial (EYEP RCT) was conducted by a multidisciplinary team led by Professor Jeff Borland from the University of Melbourne. This multidisciplinary team had expertise in economics, early childhood education, infant mental health, social work, evaluation, strategy, policy development, and management. See EYEP reports for full list of contributors https://melbourneinstitute.unimelb.edu.au/research/education/early-years-education.

The EYEP RCT recruited 145 children from 99 families between 2011 and 2016. Eligibility required children to be under three years of age at referral, have two or more family or parenting risk factors, and have early childhood education in their care plan. Families were randomly assigned to the treatment group (offered the EYEP for 3 years) and the control group (receiving usual care - a mixture of care by parents/guardian or other ECEC services).

The trial successfully engaged a highly vulnerable population, with 70% of the participating children experiencing four or more risk factors. The most prevalent risk factors were parental mental illness, alcohol or substance use, family violence, and harsh or inconsistent parenting. The participating families are substantially more disadvantaged than families with low socioeconomic backgrounds in the Longitudinal Survey of Australian Children (LSAC). For example, families participating in the RCT were more likely to experience financial crisis (32% vs. 18.8%) and children's primary carers showed higher rates of psychological distress (25.8% vs. 4.45%) (Tseng et al., 2017).

The impact of EYEP on children's IQ emerged withing the program's first 12 months and continued to strengthen over the subsequent two years. At 36-month follow up, the estimated average impact on IQ is approximately one-half of the standard deviation, which is twice as large as the average impact estimated from the early years of demonstration programs in the United States[3]. Language improvement grew throughout the trial, reaching statistical significance at 24 months and was strongest at 36 months. The impact on social-emotional development became large and significant at 24 months and was sustained at 36 months. (Tseng et al., 2022)

At the 36-month assessment, children in the EYEP group demonstrated greater average improvement of 7.6 IQ points and 6.8 language points than children in the usual care group, alongside a reduction in behaviour problems (6.1 points, equating to 0.6 of a standard deviation). The impacts on IQ and language were much larger for children whose initial scores were below 90, achieving average impacts of 13.6 points in IQ and 12.7 points in language development.

By the end of the program (36-month), the average IQ and Language scores for children in the intervention group were 99.6 and 99.5, respectively, which aligns closely to the general population average of 100. These results provide strong evidence of EYEP's capacity to significantly alter developmental and learning trajectories for highly vulnerable children.

[3] See Camilli et al., 2010 and Duncan and Magnuson, 2013 for systematic review of the program impacts on early childhood interventions.

3. The replication trial study design

3.1 Study background and research aim

The replication trial is conducted by members of the original RCT research team. After funding from the Australian government to conduct the replication trial, Parkville Institute (PI) was established to carry out the project. PI is a registered charity supporting infants and young children living with significant family stress and social disadvantage. Associate Professor Brigid Jordan AM and Dr. Anne Kennedy, members of the original RCT team, are the founding directors. PI oversees the entire replication project and is responsible for program practice. The other two RCT team members at Melbourne Institute (MI), Associate Professor Yi-Ping Tseng and Dr. Nichola Coombs, conduct outcome evaluations to assess whether the replication trial has comparable positive outcomes as the EYEP RCT. This arrangement utilises the expertise of both parties and maintains the independence of the outcome evaluation.

PI manages implementation of EYEP in partnership with three service providers, offering comprehensive support to ensure program fidelity and quality[4]. PI's support includes the regular provision of evidence-informed advice, mentoring, coaching, and professional development to build early childhood workforce capacity and leadership. A key aspect of the Institute's role is to support centres in establishing and maintaining multidisciplinary leadership teams. These teams provide leadership, operational oversight, mentorship, and informed guidance for early childhood teachers and educators implementing the EYEP intervention. (Parkville Institute 2022). Unlike some early childhood intervention programs, curriculum and pedagogy in EYEP are not prescribed or formulaic. Teachers and educators plan and implement pedagogy and curriculum that respond intentionally and flexibly to learning goals and individual children's interests, agency, abilities, family backgrounds and aspirations.

PI is considered as an implementation hub, providing expertise in early childhood education and infant mental health and offering operational support and facilitating knowledge translation between research and practice. The Institute's involvement ensures that the theoretical underpinnings of the EYEP model are maintained throughout the replication process.

The study design of the replication trial was jointly developed by the project chief investigators at Parkville Institute (Jordan and Kennedy) and University of Melbourne (Tseng and Coombs).

This study seeks to answer the following questions:

1. Can the referral and recruitment processes successfully identify and engage the target population across different communities?
2. Will the intervention achieve improvement in children's developmental outcomes comparable to those demonstrated in the original RCT?
3. Can the model be replicated with fidelity? What are the enablers in ensuring model fidelity and what are the challenges?

[4] Fidelity means enacting the program as it was designed to be implemented consistent with the description in Jordan & Kennedy (2019).

The outcome evaluation team at Melbourne Institute focuses on answering Questions 1 and 2 and provides some insights into Question 3 from the data collection process and the analyses of outcome data. Fidelity assessment will be formally conducted by Parkville Institute to answer Question 3. While outcome evaluation provides independent assessment to generate hard evidence, fidelity assessment supplies crucial complementary information on implementation quality. Together, these two evaluation streams offer a comprehensive understanding of both program effects and the implementation factors that influence them.

The study is approved by the Human Research Ethics Committee of the University of Melbourne (ID 23608 and 23994). Section 3.2 to 3.5 summarise the key elements of the study design.

3.2 Centre Selection and Setup

The replication trial tests the EYEP's implementation across three geographically and contextually diverse sites, two in Victoria (one in metropolitan and one in a regional area) and one in Queensland (metropolitan area). As the EYEP RCT was conducted in the Victoria metropolitan area, this combination allows the researchers to test differences between urban and regional settings and differences in jurisdiction.

The selection of centres involved targeted processes led by PI in collaboration with the Victoria and Queensland state governments. Through expressions of interest and direct consultations, three service providers were selected: a metropolitan not-for-profit organisation in Victoria, a prominent early education provider in Queensland, and a local government council in regional Victoria.

Following selection, each centre underwent a structured setup phase guided by PI. This included securing an appropriate building, configuring physical spaces to support the program's needs, and, crucially, establishing the Centre's leadership team. PI provided comprehensive support throughout the selection process of these leadership positions, including developing selection criteria and position descriptions, as well as participating in selection interviews.

Each centre's setup phase typically spanned three to six months, encompassing recruitment of the leadership team, educators, and ancillary staff, as well as staff training and development of centre-specific implementation plans under PI's guidance. The centres opened in a staggered sequence approximately six months apart to allow time for the thorough establishment of operational processes. This staged approach enabled careful attention to implementation quality while building toward full operational capacity.

3.3 Recruitment of participants

The eligibility criteria for the replication trial mirror those of the original EYEP RCT, targeting children:

- Aged between 0 and 3 years at the time of referral
- Assessed as having two or more risk factors as defined in the Department of Human Services 2007 Best Interest Case Practice Model (see Appendix A for the list of risk factors)
- Currently engaged with family services or child protection services
- Who have early education identified as part of their care plan

Due to funding arrangements, the replication trial includes an additional eligibility criterion — being eligible for the Australian Government’s Additional Child Care Subsidy (ACCS child wellbeing) which is

a subsidy to support children who are vulnerable or at risk of harm to participate in early education and care. This will allow us to test whether any additional considerations need to be put in place when leveraging this existing funding mechanisms for the future scaling of EYEP or similar types of programs.

The main recruitment activities include sourcing referrals, conducting consent interviews, and assisting families who consent to participate in the trial to complete the enrolment. The process is carefully designed to minimise the impact of research activities on outcomes while maintaining consistency with the EYEP RCT to ensure comparability.

The recruitment of participants follows a community-driven approach, with each of the three centres taking primary responsibility for community engagement and sourcing referrals. Referrers must be appropriate support agencies for ACCS child wellbeing who are:

- a state or territory department or agency that deals with matters relating to child welfare, or
- an organisation that deals with such matters on behalf of a department or agency.

PI provides ongoing guidance to centres on their outreach and recruitment strategies ensuring alignment with the program's objectives and effective reach to children in need of this service.

This decentralised recruitment process with support from PI leverages local knowledge and networks and, at the same time, ensures that the knowledge and experience of the previous trial can be transferred to the centres.

A research coordinator from the MI outcome evaluation team is allocated to each centre. This coordinator is responsible for collecting data and coordinating all research activities (not intervention) involving the participants. The research coordinator's involvement is strictly limited to research activities in order to minimize any potential impact of the research on program outcomes. This ensures the conditions remain as close as possible to what would occur during future scaling of the program. The research coordinator or other evaluation team members may assist the centres when there is a need to explain the research regarding EYEP, replication trial design, and recruitment protocols. To ensure comparability with EYEP RCT, all referrals are screened by Dr. Coombs to confirm eligibility before forwarding to the research coordinator of each centre to engage families for consent interviews.

The research coordinator conducts consent interviews jointly with the centre director or a member of the leadership team. Once families consent to participate in the trial, the centre staff assist families to complete the enrolment process, including the application for CCS, and the centre applies for ACCS child wellbeing. After enrolment, children and their primary carers participate in orientation to ease children into regular attendance. The orientation phase concludes when the family, primary educator, and the centre's senior leadership team agree that the child has formed a secure attachment with the primary educator.

3.4 Data collection plan

The MI outcome evaluation team collects data for the outcome evaluation and quantitative information required for the fidelity assessment tool. The chief investigators' experience from the original randomized controlled trial (RCT) will ensure that the recruitment process and data collection are carried out as closely as possible to the RCT in order to preserve data comparability.

To ensure the quality of data collection, the research coordinator and other data collection personnel are all qualified clinical researchers with experience in engaging with young children living with adversity and their parents.

Data collection covers multiple domains:

- Standardised developmental assessments with each child assessed by qualified clinical researchers, measuring cognitive development, language skills, parent-child relationships, and educator-child relationships.
- Interviews with children's primary carers conducted by research coordinators using parent questionnaires and standardised assessment tools. These tools gather information about family characteristics, service use, child behaviour and emotional functioning, child resilience, parental psychological distress, and daily parenting experiences.
- Educator's assessment of children's behaviour, emotional functioning, and resilience using standardised assessment tools.
- Attendance records collected by centres for the analyses of engagement patterns.
- Administrative records for PI's assessment of program fidelity.

Data collection of child and family outcomes occurs at three key time points in each child's journey through the program: at baseline (within three months of enrolment), one year post-enrolment, and two years post-enrolment. To ensure comfort and accuracy, assessments are conducted at times suitable for the child and family in environments where they feel at ease, either at the centre or, in exceptional circumstances, in the family home. A written child developmental report on children's cognitive and language skill will be provided to primary carers after completion of each annual developmental assessment.

Attendance records and fidelity assessment data are to be submitted to the evaluation team quarterly. In addition, PI will also use records from regular supervision sessions for the fidelity assessment.

3.5 Data analyses plan

The aim of this research project is to assess whether the intervention model can be successfully replicated. Rather than using the conventional approach of quantifying program impact by comparing participants at the replication sites to a non-intervention comparison group, we chose to directly test if the trajectories of participating children at the replication sites are similar to those of the intervention group in the original randomized controlled trial (RCT). Program impacts estimated by comparing an intervention group to a usual care non-intervention group can be affected by many institutional factors, such as the typical services available in different jurisdictions. Therefore, differences in impacts cannot be solely attributed to how well the model was replicated. By comparing to the original RCT intervention group, we can more precisely evaluate whether the replicated intervention achieved comparable outcomes.

To answer Research Question 1, whether the trial successfully identifies and engages its target population, referral information (family and parenting risk factors), and baseline information of replication trial participants will be compared with the participants of the EYEP RCT. Additionally, we will compare the characteristics of the study participants with those of children of the same age from

low-income families, as recorded in the Longitudinal Survey of Australian Children. The findings are detailed in the following sections of this report, while Appendix B outlines the data sources utilised.

To answer question 2, we will compare the progress of the participants' outcomes between trial entry and the 12- and 24-month follow-ups with the progress of the RCT intervention group. Key outcomes to be examined include four domains of child development: cognitive functioning (IQ), language development, resilience, and social-emotional development, as well as two domains of primary carer outcomes: psychological distress and parenting daily hassles. A regression-adjusted matching method will be employed to account for any differences in baseline characteristics and family risk factors when analysing outcomes. The findings will be presented in 12- and 24-month follow up reports (report 2 and 3).

Additionally, administrative records of recruitment, family engagement, and child attendance will also be benchmarked against the EYEP RCT to offer a richer interpretation of the outcomes. The information will also be compared across three different centres if the sample size is large enough for statistical reliability to shed light on differences across geographical areas and jurisdictions.

PI will conduct a systematic fidelity assessment through multiple data streams and examining the implementation barriers and enablers, contextual influences, and support requirements across centres.

4. Overview of trial progress and engagement

4.1 Recruitment progress

The three centres opened in a staggered sequence, beginning with Centre 1 in January 2023, followed by Centre 2 in August 2023, and Centre 3 in January 2024. This phased implementation allowed careful attention by PI to program fidelity and operational capacity at each site.

Engagement of potential referrers typically commenced three months prior to each centre's opening. While recruitment of participants continues at all three centres, extending beyond the anticipated 6-month recruitment period. Centre 1 is approaching capacity, while centres 2 and 3 are still substantially below the centre capacity.

Table 4.1: Recruitment progress

	Centre 1	Centre 2	Centre 3
Centre open	January 2023	August 2023	January 2024
Maximum number of children (Licensed places)	42	48	39
Number of children attending the program (Number of children awaiting commencement)	28(2)	15	11

Note: Recruitment is on-going, this table reports only families who completed consent process prior 30th September 2024. Participating status is recorded as of 15 November 2024.

Due to necessary data processing time, this initial report includes only those children who were recruited up to 30 September 2024 and their data collected prior to 15 November 2024. The sample size is too small to have statistical power for comprehensive comparisons across the three centres.

Therefore, we present only a brief overview of recruitment by centres to provide some indications of differences across centres. However, the comparisons need to be interpreted with caution as the three centres are in different stages of recruitment phase. Combined samples were used for the main analyses of participant characteristics to provide more robust findings. Subsequent report will provide updates to offer a more complete picture of all trial participants.

Table 4.2 presents the number of children who consented each year since the centre was open and compares with the RCT. When comparing the statistics, it is worth noting the differences in geographical context across the 3 centres in the replication trial and the RCT centre.

Table 4.2 Comparisons of recruitment pace and retention rates across centres

	Replication trial			EYEP RCT	
	Centre 1	Centre 2	Centre 3	Treatment	All
Geographical area of centre	Metro. VIC	Metro. QLD	Regional VIC	Metro. VIC	
Duration since opened (up to September 2024)	1 yr 9 m	1 yr 1 m	9 months		
Num. consented in year 1	51	23	24	18	35
Num. consented in year 2	19	3	n.a	16	35
Num. consented in year 3	n.a	n.a	n.a	11	29
Num. consented in year 4-5	n.a	n.a	n.a	27	46
Total num. consented	70	26	24	72	145
Total num. referred	96	31	34	n.a.	177
Consent rate	73%	84%	71%	n.a	77% (82%)
% of consented commenced regular attendance	52%	80%	52%	81% (83%)	n.a.

Note: For comparison purposes, consent rate and percentage commenced regular attendance for EYEP RCT, excluding children referred to the trial after their sibling's commenced participation in the trial. The figures for full sample are in parenthesis.

Centre 1 demonstrated strong initial recruitment, with 51 children consenting in its first year, exceeding the original RCT's first-year treatment and control group combined. Second-year recruitment at Centre 1 continued with 19 additional consents. Centre 2 achieved 23 first-year consents and 3 in its partial second year, while Centre 3, in its first nine months, 24 children consented.[5] Centre 1's higher recruitment numbers may reflect strong existing community networks and effective referral pathways in an established urban setting.

Regular attendance commencement rates (proportion of consented families commencing regular program attendance) vary across centres. While Centre 2 achieved an 80% commencement rate, comparable to the EYEP RCT (83%), both Centre 1 and Centre 3 showed lower rates of regular attendance (52%). This suggests that despite strong initial engagement, particularly at Centre 1,

[5] The consenting process had to slow down at some stage in Centre 3 due to challenges in recruiting of educators. The early childhood education and care (ECEC) sector is experiencing a shortage of educators in both states.

centres face varying challenges in supporting families' transition to regular program participation. Centre 1 and 3 supported significantly more families through the initial transition process compared to the RCT centre in its first year. The fidelity assessment will examine how centres managed this higher workload and its potential implications for retention rates.

Each centre's engagement achievement should be considered within its local context and implementation stage. The observed patterns cannot be used as a measure of performance for the individual centres. In addition to strategy and effort by centres, the engagement patterns are also likely to be affected by, for example, differences in service provision systems between jurisdictions, systematic approaches employed by referral organisations, and the characteristics and challenging circumstances of the referred families. The following sections provide further information on referral organisations and retention patters of families.

4.2 Referral organisations

The referral organisations were analysed to further understand the variations across three centres. The analysis revealed significant variations in referral sources, consent rates, and participant retention across different healthcare and social service sectors. This variation is not surprising, given the decentralised approach in sourcing referrals. As shown in Table 4.3, maternal and child health nurse referrals dominate the overall referral landscape, accounting for 52.8% of the total referrals, with a particularly high representation in Victoria (Centres 1 and 3). Family services emerge as the second most frequent referral source, contributing 19.3% of referrals, with notable concentrations in centres 2 and 3. Community health, child protection, and other health services represent smaller but important referral pathways, contributing between 6.8% and 13.7% of the total referrals. Differences in service provision systems between jurisdictions and existing networks of centres may have contributed to these variations.

Table 4.3: Referral organisations

Referral organisation	Centre 1	Centre 2	Centre 3	Total
Family service	8.3	41.9	29.4	19.3
Community health	22.9	0.0	0.0	13.7
Child protection	3.1	16.1	11.8	7.5
Maternal and child health nurse	65.6	6.5	58.8	52.8
Child development or mental health clinic	0.0	35.5	0.0	6.8

Table 4.4 shows that both consent rate (proportion of referred children consented) and retention rate (proportion of consented children commenced regular attendance) varies across different types of referral organisations, ranging from 58% to 96% for consent rate and 27% to 89% for retention rate. These variations indicate potential differences in several factors, including the referral processes used, strategies for engaging families, systematic approaches employed by the various referral organisations, as well as disparities in how services are funded within each local area. For example, maternal and child health nurses have a low consent rate, but a high number of referrals. The low consent rate may not be a concern if their engagement approach is to refer potential participants as widely as possible to give families the opportunity to communicate with the program recruitment

team first to make informed decisions. The data underscores the importance of understanding the unique characteristics of each referral organisation to optimise engagement and retention strategies.

Furthermore, the characteristics of families and engagement strategies of the centres can also contribute to the variations, especially in retention rates. As Centres 2 and 3 are still in the early stages of recruitment, the sample size is insufficient for more comprehensive analyses. Further analyses using a larger sample size (all replication trial cohorts) and integration with fidelity assessment information are warranted.

Table 4.4: Consent rate and retention rate by referral organisation

Referral organisation	Consent rate	Retention rate	Total number of eligible referral
Family service	96.8	70.4	31
Community health	72.7	26.7	22
Child protection	58.3	85.7	12
Maternal nurse	67.1	52.7	85
Child development or mental health clinic	90.9	88.9	11

Retention rate is defined as number commenced regular attendance / number consented (excluding those still in orientation)

4.3 Understanding Population Reach and Engagement

This section provides information on patterns of participant retention. A flow chart outlines the number of children retained at each stage of the trial and the reasons for withdrawal are first presented, followed by comparisons of children's demographic characteristics and child development risk factors between those who did and did not continue to participate in the study.

Participants flow

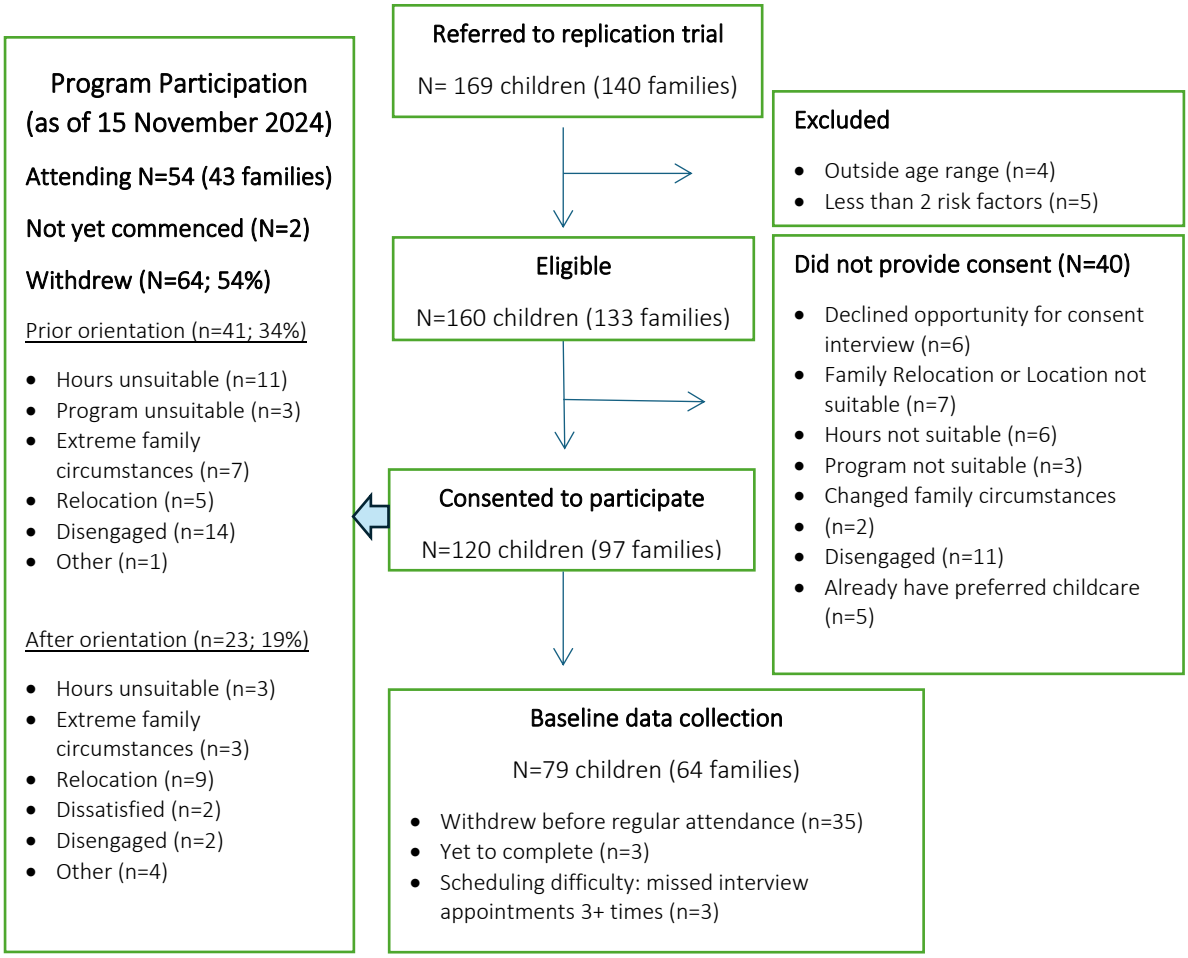
As shown in Figure 4.1, of the 169 children (140 families) referred to the program, nine were excluded because of not meeting the basic eligibility criteria (age range or minimum risk factors). In total, 120 children (97 families) consented to participate. Of the 40 children (37 families) who did not provide consent, many did not provide specific reasons (n=17), either families declined consent interviews or disengaged without reason (some were unable to be contacted) despite the high number of follow-up attempts. Reasons frequently cited by families includes geographical barriers (n=7; majority due to relocation), unsuitable hours (n=6; majority preferred longer hours), and already had preferred childcare (n=5).

After families provide consent, centre staff will assist families in completing the enrolment process, while research coordinators organise data collection.

For program participation, among the 120 children (97 families) who provided consent, attrition occurred in two phases. Prior to orientation, 41 (34%) children withdrew, with the frequently cited primary reasons being hours not suitable (n=11), extreme family circumstances (n=7), and relocation (n=5). Many children (n=14) were disengaged without explicitly mentioning the reason. A further 23 children (19%) withdrew after commencing orientation, with relocation being the most cited reason (n=9).

These attrition patterns largely reflect the complex life circumstances of the target population. Families face multiple challenges, such as unstable housing, complex service system involvement, and prioritisation of crisis management over preventive services. Insufficient hours is the only program-related reason frequently cited.

Figure 4.1: Replication trial Recruitment and program participation flow chart



Note: Recruitment is in-progress. The flowchart includes only those families that completed the consent process before 30 September 2024. Withdrawal reasons that have only 1 observation are grouped into others.

Most data collection attritions are due to participants' early withdrawal from program participation[6]. This is similar to the data collection patterns for the treatment group in the RCT. For children who commenced regular attendance, over 95% completed baseline data collection, and only three did not complete it because of scheduling difficulties.

The recruitment and enrolment processes are managed by research coordinators and the leadership team in the centre which consist of qualified infant mental health and family practice consultants, and experienced educators who have substantial experience in engaging with vulnerable families. However, a considerable number of families are still disengaged despite many engagement attempts. A key challenge lies in the profound level of stress and disadvantages experienced by potential

[6] None of the families requested the removal of the data already collected by the research team prior to the withdrawal of program participation

participating families. The process of moving from initial referral to secured consent often involves multiple engagement attempts, with some families requiring up to ten scheduled appointments before successfully attending the consent interview. This pattern reflects not just logistical challenges but also the deep complexity of eligible families' lives and the significant barriers they face in engaging with services and participating in ECEC services.

These challenges are intrinsic to working with highly vulnerable populations and reflect the circumstances that make EYEP intervention necessary. Successfully engaging these families requires extraordinary flexibility in appointment scheduling and persistent, sensitive follow-up. It is critical to understand that apparent "lack of engagement" often reflects overwhelming life circumstances rather than disinterest, and to recognise that building trust with vulnerable families takes time.

Retention patterns

To further understand the retention patterns, children's demographic characteristics and risk factors are compared between those who did and did not continue their participation in two stages of engagement: obtaining consent and the enrolment process. The analyses can help identify potential barriers to program uptake and retention.

Due to the small sample size at this stage of the project, we focused only on core risk factors (i.e. severe and relatively more common), including 7 family and 5 parenting risk factors[7]. The small sample size may limit the detection of subtle group differences. Therefore, for statistical tests on whether the differences are significant between two groups, we used a 10% significance level as the cut-off instead of the conventional 5% level to raise awareness of potentially important differences[8]. The key differences are summarised below. The full set of statistics and statistical test results is included in Appendix Tables A1 and A2.

Comparing potential participants who provided consent with those who did not, there is a significant gender difference, with boys overrepresented in the non-consenting group (70.0%), while the consenting group are more gender balanced (50.8% boys). The two groups have similar incidences of family risk factors, except for a higher proportion of consented families with disability or complex medical issues (43.3% versus 17.5%). This difference may reflect these families' higher recognition of the need for specialised intensive education and care for their children.

Findings on the prevalence of parenting risk factors are mixed. *Rejection of child and harsh, inconsistent discipline, neglect, or abuse* are more common in the consenting group than in the non-consenting group. Conversely, *lack of ability or unwillingness to prioritise child's needs* is more prevalent in the non-consenting group, although the difference is only borderline significant. As the definition of several parenting risk factors requires referrer judgement, referrer differences (scope of services offered, amount of contact with family prior to referral) may have also contributed to this mixed pattern.

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[7] Family factors included are *attachment/relationship issues; alcohol or substance use; disability/complex medical issues; mental health issues; family violence; social isolation; inadequate housing*. The five parenting risk factors included are *primary carer under 20 years old; lack of ability or willingness to prioritize child's needs; rejection of child; harsh, inconsistent discipline, neglect or abuse; Inadequate supervision*.

[8] Robust standard errors are used to take into account the sibling correlations within families. For statistical significance, we used 10% level as cut off instead of conventional 5% level reduce the probability of failing to detect a factor when it is truly important.

Overall, families who agreed to participate exhibit a greater degree of aggregate vulnerability, with an average of 5.96 risk factors, while those who declined show an average of 4.85 risk factors. Multivariate analysis of the probability of providing consent reveals that a child's gender does not significantly affect the probability of providing consent once risk factors are controlled. The risk factor of *disability or complex medical issues* significantly increases the probability of providing consent by 17 percentage points, while the *lack of ability or willingness to prioritise child's need* reduces the probability by 16 percentage points and nearly reaches statistical significance.[9]

Comparing consented families who commenced regular program attendance and those who withdrew after initial consent, children's gender and age and many core risk factors are similar between the two groups. The most notable difference emerged in the risk factor of *rejection of child*, which was significantly more prevalent among the families of children who commenced regular attendance (15.4%) compared to early withdrawals (2.1%), and referrer-identified *children at risk of harm* is also more common in the group that commenced regular attendance (30.8% versus 14.6%) as well as social isolation (49.2% versus 29.2%).

These patterns suggest that families experiencing specific vulnerabilities in parent-child relationships and social support may be more likely to maintain program engagement. The higher incidence of these three risk factors also results in the regularly attending group showing a slightly higher average number of total risk factors (6.2 versus 5.4), although the difference is not statistically significant. Considering the average of 4.9 total risk factors among non-consenting families, there is a consistent pattern that families with more complex issues are more likely to remain engaged, possibly because of the greater need for wrap-around ECEC services. However, this result is indicative only as referrer-reported risk factors may not fully capture the complexity of family circumstances, because referrers' understanding of family circumstances may vary depending on the type of services they provide to the families.

Another limitation of the recruitment analyses is that 38% (31 out of 81) of children who did not consent or dropped out prior to orientation did not provide specific withdrawal reasons, which constrains our full understanding of participation barriers. However, this is the common nature of data collection for vulnerable populations. To better understand early dropouts, analyses using linked government administrative data can offer further insight. This is not within the scope of the current project but can be considered for inclusion in future research.

4.4 Comparison of population reach and engagement with EYEP RCT

This section presents a comparative analysis of the risk factors and engagement patterns between participants in the replication trial and those in the treatment group of the EYEP RCT[10].

Comparisons of risk factors

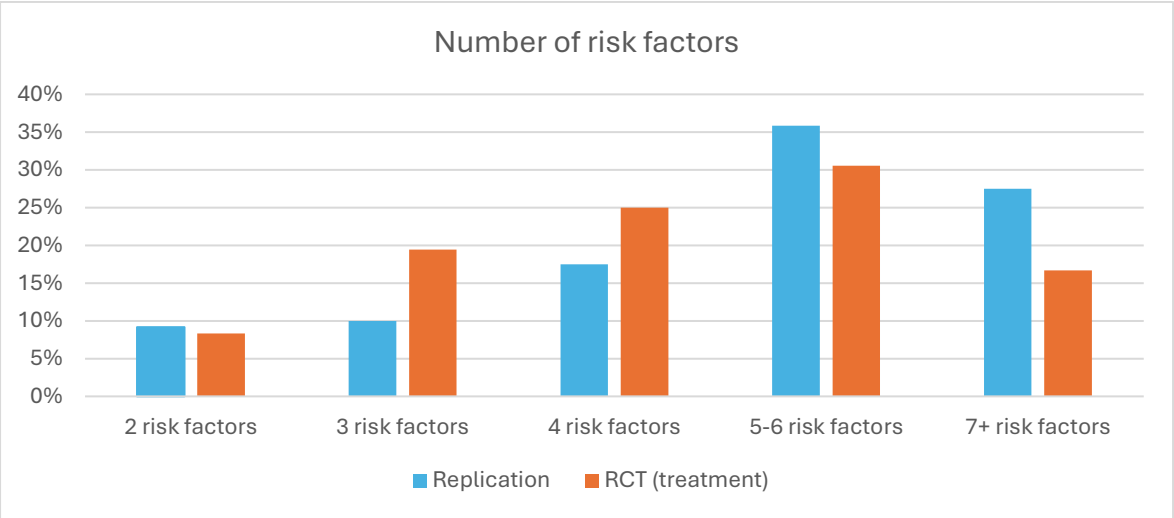
The replication trial participants presented with a significantly higher average total number of risk factors (5.96) compared to the original RCT group (4.65), representing an average difference of 1.31

[9] Regression results are available upon request.

[10] Comparison with full sample results in similar findings as treatment and control group in the RCT are randomly assigned and there are no systematic differences between them. The results for comparing with RCT full sample are available upon requests.

additional risk factors per child. As shown in Figure 4.2, the replication cohort have more children with at least 5 risk factors than the RCT cohort, whereas the proportion of RCT children with 3 or 4 risk factors are higher than the equivalent statistics in the replication trial. Both cohorts of participants exhibited high vulnerability, with over 80 % of replication trial participants and over 70% of RCT participants having 4 or more risk factors.

Figure 4.2 Total number of risk factors: Replication trial vs. RCT treatment group



Figures 4.3a and 4.3b compare the risk factors of children who consented to participate. The charts show that the overall patterns are similar between the two cohorts, with a high incidence of family risk factors and mental health issues being the most prevalent risk factors, followed by family violence and attachment or relationship issues.

The replication cohort has a significantly higher proportion of participants with *disabilities or complex medical issues* than the RCT treatment group (43.3% vs. 26.4%) and a higher incidence of another 4 family risk factors, although the differences are not statistically significant. In contrast, the RCT treatment group have higher overall parenting risk factors with significantly more prevalence of harsh discipline, abuse, and neglect than the replication cohort (33.3% vs. 9.2%). We also compared children who commenced regular attendance; the patterns are similar, and the differences are even more significant (See Appendix Tables A.3 and A.4 for the test statistics).

The different referral sources between the two cohorts are likely to be the main contributors to these patterns[11]. Most RCT referrals were from Child First (support for family violence or families who need assistance with the care and child wellbeing)[12] or statutory Child Protection services, whereas a large proportion of replication trial referrals are from healthcare professionals (especially maternal child

[11] Children with risk factor of disability or complex medical issues have higher consent rate among replication trial participants, however, this is not the main reason for the difference between the two cohorts. We do not have risk factors for RCT non-consenting children. Therefore, we compare all eligible children of replication trial with RCT consenting children, the difference remains substantial. Given that children with medical issues may also be more likely to consent in RCT, the differential consent rates is unlikely to be main contributor of the difference between two cohorts.

[12] Orange Door has replaced Child FIRST in Victoria. In the RCT the industry partner was the lead agency for the local Child First and this would have increased the visibility of the program and likelihood of referrals being made. Queensland has different funding mechanisms and child and family service system.

health nurses) working in public health settings. Very limited referrals are from statutory child protection services. Some children referred by health professionals may be subject to child protection notifications or may need family support for child well-being; however, not all children subject to child protection will have close contact with health professionals. The skewed referral sources may lead to children in need of the EYEP missing out. It is important to investigate the barriers to referrals in process evaluation and fidelity assessment to unpack the reasons.

Figure 4.3a Family risk factors of consented children: Replication trial vs. RCT treatment group

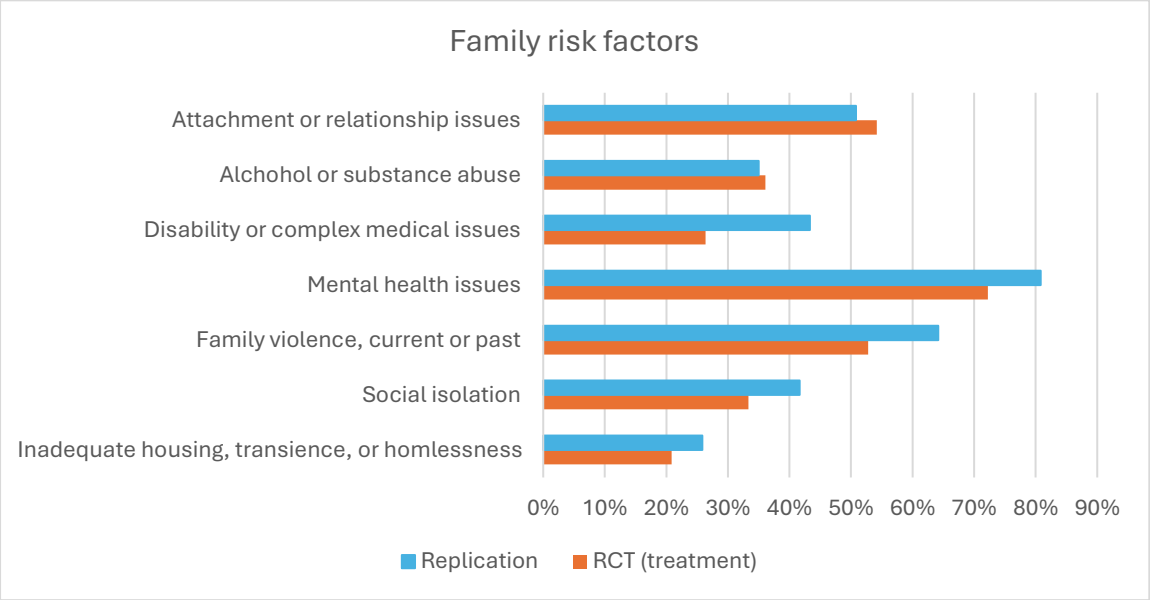
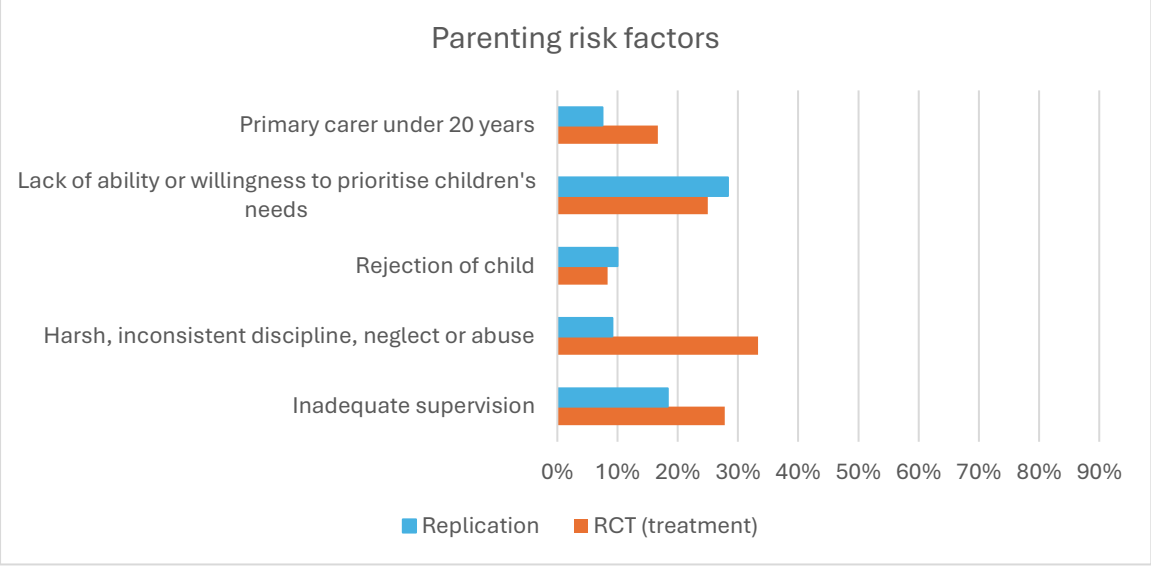


Figure 4.3b Parenting risk factors of consented children: Replication trial vs. RCT treatment



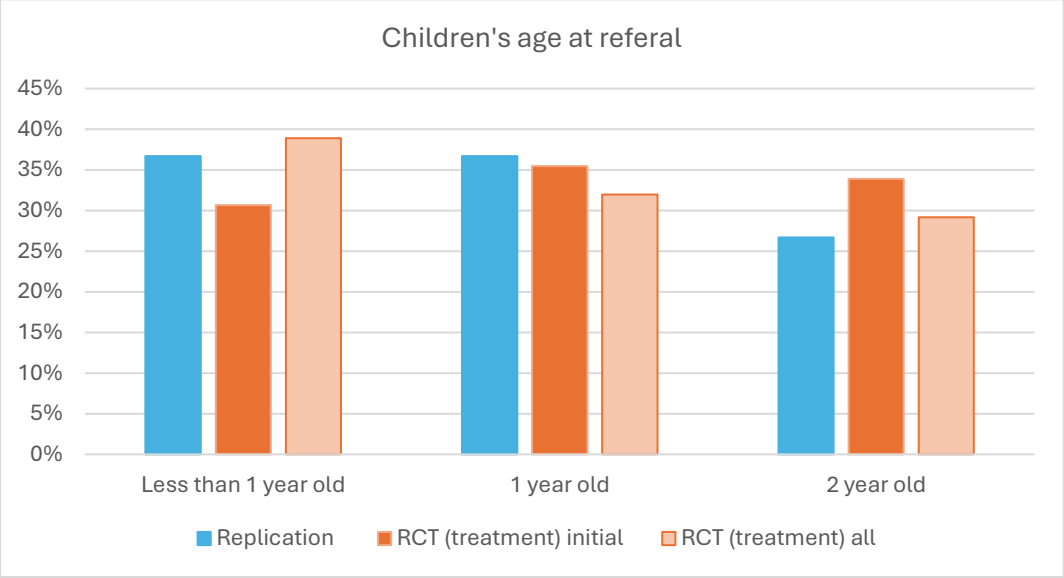
Duration and intensity of initial engagement with families

The EYEP model has a very carefully designed and individualised orientation process to ease families into the phase of regular attendance, which is very different from general early childhood education and care centres. During orientation, parents are initially expected to stay with their children in the centre, and children are not required to attend every day, although families are likely to be

encouraged to attend every day even for a short period to support a smoother, more continuous transition. Once the leadership team and the primary educator agree that the child is able to use the primary educator as a secure base, the child commences regular attendance which means the child is expected to attend 5 hours a day and 5 days a week. For some babies, this transition phase can take up to 6 months.

Next, the duration of the initial engagement is compared between the replication trial participants and the EYEP RCT participants. As the length of orientation is age dependent, it is important to firstly present the age distributions of the two cohorts. The intake of RCT participants ran for over 6 years, and participating children's newborn siblings were automatically assigned to the same group if the families still had 2 or more risks. For comparison purposes, we excluded babies who joined after their siblings were already in the trial because their initial engagement duration is likely to be much shorter. This comparable figure is denoted by the orange bars in Figure 4.4, and the full sample is indicated by the light orange bars. The age distribution of the replication and RCT cohorts are ballpark comparable, with a slightly higher proportion of babies in the replication cohort (35.5%) compared to the 29.9% in the RCT initial cohort, and the proportion of the 2-year-olds for the replication trial is 8.3 percentage points lower than those in the RCT initial cohort.

Figure 4.4 Distribution of children's age at referral

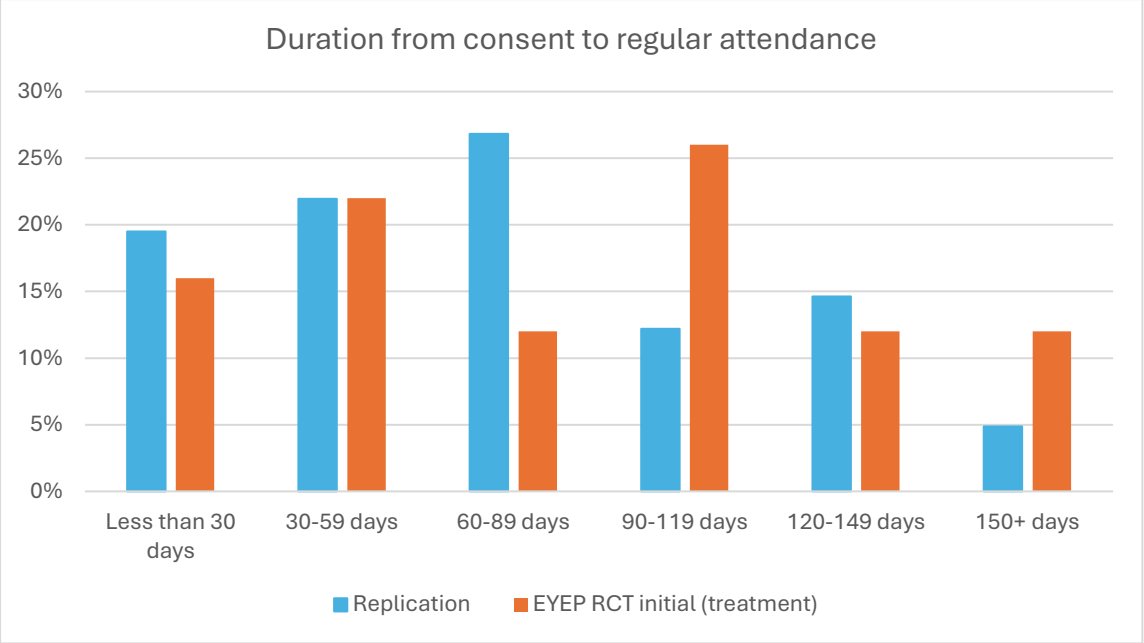


Note: The sample includes children who consented to participate. The EYEP RCT initial cohort (orange bars) excludes children referred to the trial after their siblings commenced participating in the trial.

Despite the slightly younger participants and higher number of risk factors, the replication trial has a slightly shorter average transition period (from the participation consent date to the regular attendance start day) than the EYEP RCT (76.2 vs 91.2 days). However, the differences are not statistically significant because of the large variation in the initial transition period. Figure 4.5 shows

the distribution of the transition period length[13]. The key difference between the two cohorts is that a larger proportion of replication trial participants take 60-89 days to complete the transition, while RCT participants have a higher proportion requiring 90-120 days to complete.

Figure 4.5 Distribution of duration for initial engagement (consent to regular attendance)



Note: (1) The sample includes children who commenced regular attendance. (2) The EYEP RCT initial cohort exclude children referred to the trial after their siblings commenced participation in the trial. (3) Some centres commenced recruitment much earlier than the centre's open date. Therefore, to best represent the length required to engage family, children who consented before the centre open date are excluded from this analysis. The equivalent graph for full sample is presented in appendix Figure A.2.

To further unpack the initial engagement, Table 4.5 presents the orientation duration and intensity of participation for the replication trial[14]. On average, it takes approximately 1.5 months to process the enrolments which include complete enrolment forms, application for and approval of the application for CCS and ACCS child wellbeing as well as the infant mental health assessment. The length of time to obtain approval of CCS and ACCS child wellbeing applications depends on the workflow of the government department administering these as well as the timeliness of referrers in providing a letter to substantiate the eligibility.

Orientation commences after the infant mental health assessment session (which informs the particulars of the orientation process for the individual child and family). The average duration of orientation is 35 days which is slightly shorter than the average length of the enrolment process. On average, children attended for 11 days and 3.7 hours per day. However, the statistics vary

[13] As this is a research trial, the initial consent process is slightly different from program operation without research. Thus, we present duration of consent to regular attendance which are all operated by children's centres. Distribution of duration from referral to regular attendance is presented in Appendix Figure A.1. In addition, the attendance and orientation data collection differed slightly between the two trials, which may have resulted in small differences in the distribution of duration. See Appendix B for a detailed description of these differences.

[14] EYEP RCT did not collect attendance records for orientation and therefore not include in this table.

significantly across centres, and Centre 2 has the shortest duration and highest intensity in orientation. The orientation process not only varied significantly across centres, but also among participants in the same centre which is as expected—the orientation plan is individualised and tailored to the needs of each child.

Table 4.5 Duration and intensity of orientation

	Centre 1	Centre 2	Centre 3	Total
Average duration consent to regular attendance	78.3	56.6	148.0	77.7
Average duration consent to orientation	42.9	36.1	90.0	45.1
Average duration of orientation	37.0	15.9	70.1	35.6
Average total days attended during orientation	11.1	11.2	17.0	11.9
Average hours of attendance per day	3.0	4.4	4.4	3.7
Number of children	34	20	10	64

Note: 1. The sample include only those children who completed the orientation process.
2. Duration from consent to regular attendance and consent to orientation exclude children consented prior to centre open. The sample size of Centre 3 is less than 5 so need to be interpret with caution.
3. Average duration of consent to orientation exclude children consented prior centre open.
4. Average hours of attendance per day are averages over the days attended.

5. Characteristics of participants

This section presents the children's family background, characteristics of primary carers, and child health and developmental outcomes using information collected at baseline (initial) collection. We compared the replication trial participants with the treatment group of the EYEP RCT and participants of the Longitudinal Survey of Australian Children (LSAC). The LSAC sample is restricted to families with low socioeconomic backgrounds (the bottom 25% of families are ranked according to the socio-economic status (SES) index derived by the LSAC survey team). Population weights are applied when deriving LSAC statistics, so that the information is representative of the population. Further details on the data are included in Appendix B.

5.1 Family background

Table 5.1 describes the characteristics of the families participating in the replication trial and the two comparison groups. P-values that test whether the differences between the two groups are statistically significant are also presented. Due to the small sample size, for the comparison between replication trial and RCT, we use 10% significance level ($p<0.1$) as the cut-off in the discussion to bring more awareness of potentially important differences. For comparisons with LSAC, 5% significance level ($p<0.05$) is used as the cut-off. The same rules are applied throughout this section.

Family backgrounds are generally comparable between the participants in the replication trial and the intervention group of the RCT. The only significant differences are that the RCT group had a higher incidence of a specific type of stressful event (had a serious problem with a close friend, neighbour, or relative) and the average number of different types of financial stress where the RCT group is also higher.

Similar to the findings in the RCT baseline report (Tseng et al. 2017), participants recruited into the program are on average, much more disadvantaged than the LSAC low SES group. The LSAC group has a higher prevalence of traditional nuclear families (both parents with children only) (64.3% vs. 31.4%),

whereas the replication trial has a much higher proportion of single-parent families (with or without other adults). The proportion of families having 2 or more stressful events in the past 12 months for replication trial is more than double the proportion among LSAC families (32.8% vs 14.5%) with the most notable differences being the incidences of "broke off a romantic relationship", "had a serious problem with a close friend, neighbour or relative", and "had problems with the police and a court appearance". Overall, the differences in occurrence of stressful events and financial stress between RCT and LSAC seem to be slightly larger than those between replication trial and LSAC.

Table 5.1 Family background of participants

	Replication (T)	RCT tm (C)	LSAC low SES (L)	p-value (T-C=0)	p-value (T-L=0)
Household types					
both parents + children only	31.4%	37.7%	64.3%	0.540	0.000
both parents + children + other adults	5.7%	4.3%	5.6%	0.769	0.961
single parent + children only	38.6%	26.1%	22.0%	0.177	0.015
single parent (or no parent) + children + other adults	24.3%	31.9%	8.1%	0.412	0.008
Number of persons in household	4.1	4.4	4.3	0.367	0.197
Stressful events:					
Experienced stressful event in the past 12 months	68.7%	80.6%	37.9%	0.151	0.000
Have 2 or more stressful event in the past 12 months	32.8%	41.8%	14.5%	0.362	0.007
Suffered serious injury or assault	11.6%	14.9%	6.8%	0.638	0.286
Broke off a romantic relationship	27.5%	22.4%	9.4%	0.558	0.003
Had a serious problem with a close friend, neighbour or relative	36.8%	53.7%	15.8%	0.085	0.002
Had a major financial crisis	24.6%	32.8%	18.4%	0.346	0.328
Had problems with the police and a court appearance	17.6%	17.9%	3.6%	0.972	0.004
Someone in your household had an alcohol or drug problem	13.2%	20.9%	6.3%	0.326	0.137
Financial Stress					
Had serious financial stress (yes to any of fin. stress questions)	77.6%	82.8%	n.a.	0.501	n.a.
Numbers of "yes" to the financial stress questions	1.9	2.8	n.a.	0.015	n.a.
Jobless family (no one employed in the family)	82.9%	91.2%	33.4%	0.202	0.000
Number of children	70	69	2423		

Note: Financial stress items include: (1) not able to pay gas, electricity or telephone bills on time (2) couldn't pay the mortgage or the rent on time (3) gone without meals (4) unable to heat or cool your home (5) pawned or sold something (6) sought assistance from a welfare or community organisation (7) had financial limits on the type of food you could buy.

5.2 Characteristics of primary carers

The characteristics of primary carers of children in the two trials are fairly similar. The relatively more notable difference is the higher representation of immigrants among RCT participants (48.6% vs. 31.9%), and the difference is only close to but not statistically significant. However, a similar proportion of primary carers reported not using English as the main language at home between the two trials (replication trial, 28.8%; RCT, 31.9%).

Compared with the LSAC group, the replication trial has a much higher proportion of primary caregivers who had tertiary degrees (29.4% vs. 2.9%), and the lower portion did not complete high school, suggesting that the disadvantage is not simply due to lower education. Mental health, family violence, and other risk factors played a significant role. Primary carers have a lower employment rate (17.7% vs. 30.8% of the LSAC low SES group) and higher psychological distress (K6 score 14.2 vs 9.7), with a much higher proportion of severe psychological distress (22.9% vs. 4%).

Table 5.2 Characteristics of primary carer

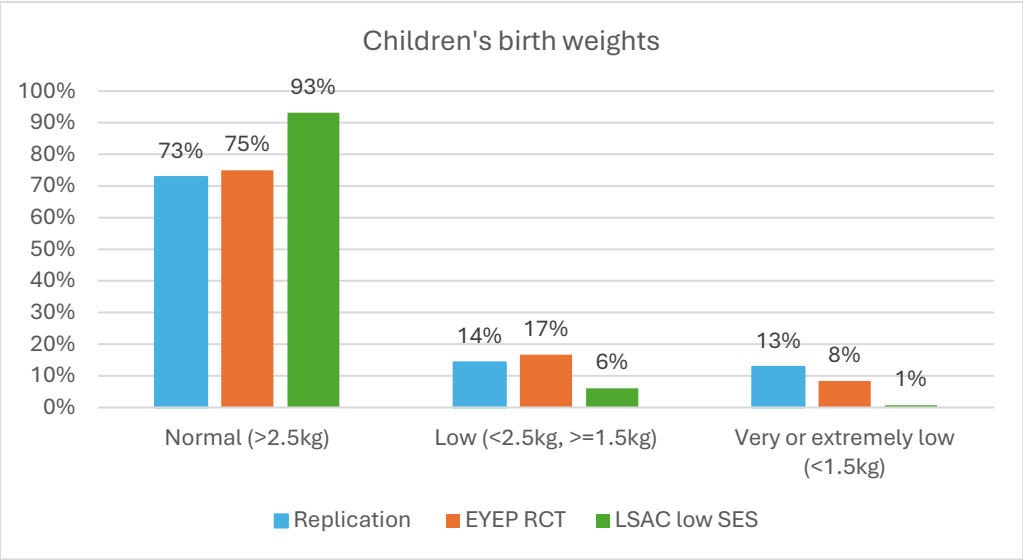
	Replication (T)	RCT tm (C)	LSAC low SES (L)	P-value (T-C=0)	P-value (T-L=0)
Age	32.0	30.3	29.6	0.317	0.056
Highest education level					
Tertiary degree+	29.4%	30.0%	2.9%	0.951	0.000
Year12+certificate	11.8%	12.9%	12.3%	0.878	0.512
Certificate but no year 12	17.6%	18.6%	19.1%	0.911	0.408
Year 12 only	11.8%	7.1%	20.6%	0.400	0.574
Year 10-11	8.8%	17.1%	33.2%	0.199	0.000
Below year 10	20.6%	14.3%	11.9%	0.416	0.329
Immigrants	31.9%	48.6%	20.8%	0.115	0.167
English is not main language	28.8%	31.9%	17.3%	0.764	0.163
Employed	17.1%	8.8%	30.8%	0.202	0.024
Not in the labour force	71.4%	82.4%	62.6%	0.220	0.285
Average K6 scores (Psychological distress)	14.2	14.5	9.7	0.787	0.000
% with severe psychological distress	22.9%	23.9%	4.0%	0.901	0.002
Number of children	70	69	2423		

Note: K6 is a screening scale for non-specific psychological distress. (Kessler et al. 2002). The total score ranges from 6 to 30. Severe psychological distress is defined as those with K6 total score ≥ 19.

5.3 Child health and development

Figure 5.1 shows children's birth weights are similar between the two trials but significantly different from the LSAC children in low SES families. Approximately a quarter of the children in the two research trials had a low birth weight (<2.5 kg), while only 7% had a low birth weight in the LSAC group. Babies born with extremely low birth weight (<1.5 kg) accounted for 13% of participants in the replication trial and only 1% of LSAC children. Low birth weight is a strong predictor of developmental delay at the start of primary school irrespective of birth prematurity (Allotey 2017, Kim et al. 2024). The significant differences in the prevalence of low birth weights indicated that both trials recruited children with a much greater need for intervention than general low-SES children. Further evidence based on standardised assessments conducted by qualified clinicians is presented below.

Figure 5.1 Children's birth weights



Figures 5.2–5.4 presents the distributions of the baseline scores for the Bayley Scales of Infant and Toddler Development (Bayley). The cognitive and language measure is a direct chid assessment conducted by qualified clinicians, while social-emotional measures are parent-reported information from interviews conducted by qualified technicians using Bayley Social Emotional questionnaires. We compared the children in the replication trial with the RCT intervention group and the general population. As all scores are standardised, the general population is expected to have a mean score of 100 and a standard deviation of 15. Standardised scores are classified following Johnson et al. (2014) [15]the scores are classified into the following categories:

- Superior range: Score 130 and above
- Above Average: Score 115-129
- Average Range: Score 85-114
- Mild Delay: Score 70-84 (1-2 standard deviations below mean)
- Moderate to Severe Delay: Score below 70 (lower than 2 standard deviations below mean)

The mean scores and statistical tests of the differences between the participants of the two trials are presented in Table 5.3. A general pattern emerges—the cognitive and language scores of RCT children are significantly lower than the general population, and the children in the replication trial have even lower scores. The mean score of cognitive and language are significantly lower than the mean score of children in RTC (80.9 vs. 90 for cognitive and 78.6 vs. 86.3 for language) and more than one standard deviation lower than the average of the general population (100). The proportion of children in the replication trial with mild delays in cognitive domain (70-85) is 38% and those with scores indicating moderate to severe delay (less than 70) is 24%, which is much higher than the 16%

[15] Johnson et al. (2014) provided a classification for the Bayley-III, which was adopted in the EYEP RCT report 1. However, the replication trial had to update to the Bayley-IV due to the phasing out of the Bayley-III. To our knowledge there are no research articles that compare the score of Bayley III and IV. There is no recommendation on classification of developmental delay using Bayley IV. Thus, in this report, we follow the classification from the RCT report 1 for consistency and comparison purposes.

and 4% in the original RCT. Language scores show even greater differences, with 22% scoring in the mild delay range and 40% scoring in the moderate to severe delay range.

Figure 5.2 Bayley scales of infant and toddler development: cognitive

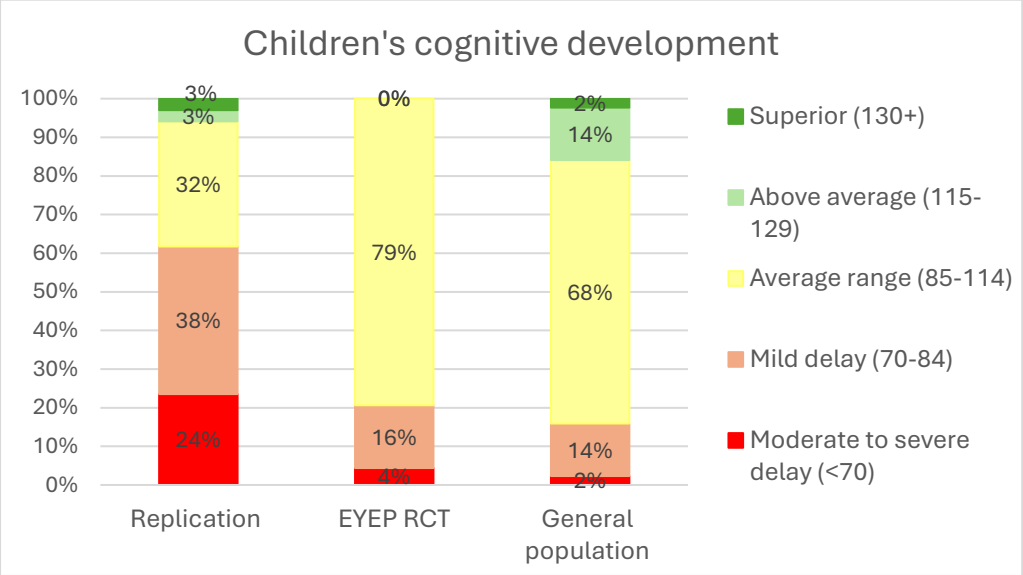
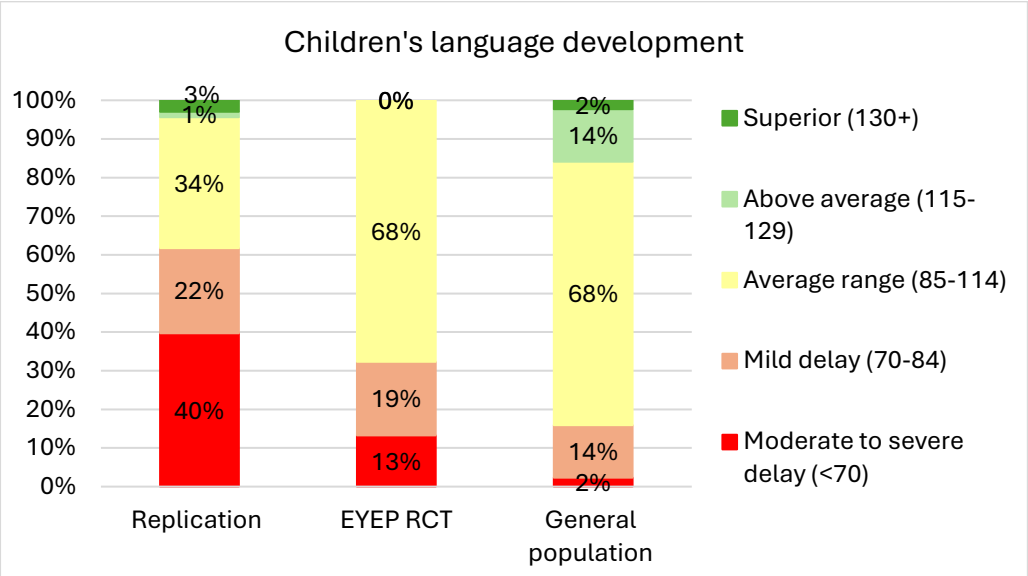


Figure 5.3 Bayley scales of infant and toddler development: language



While children in the RCT did not show significant social-emotional developmental differences compared with the general population, children in the replication trial demonstrated greater social emotional developmental differences, with an average score of 16.9 points (more than one standard deviation) lower than the general population and 12.7 points lower than the RCT children. Nearly half of the children in the replication trial showed scores below average in social-emotional development (48% total) with 22% scoring in the mild SE delay range (70-84) and 26% scoring in the moderate to severe SE delay range (below 70).

Figure 5.4 Bayley scales of infant and toddler development: social emotional

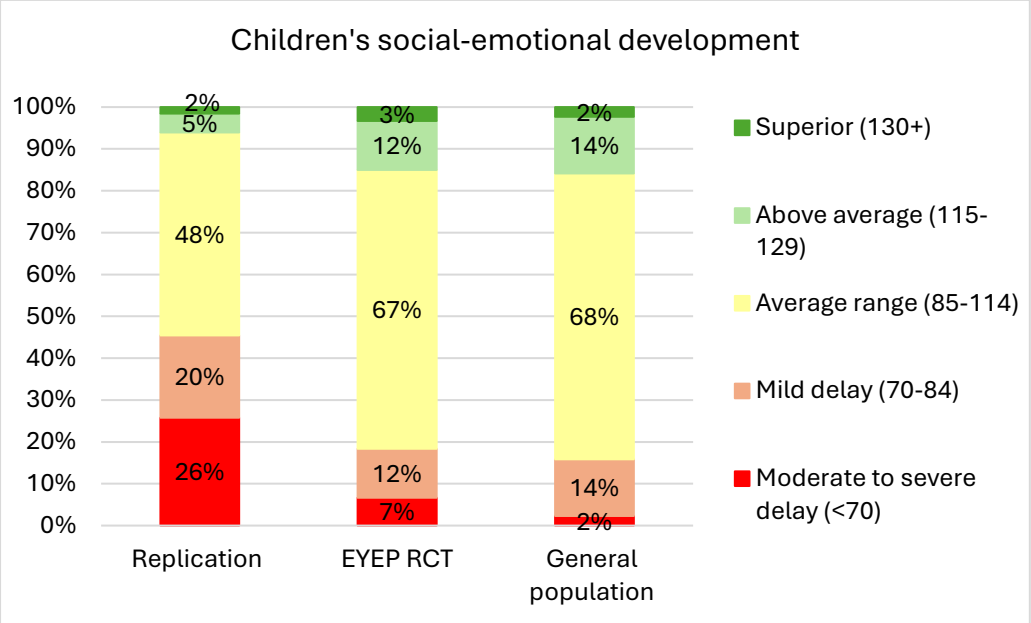


Table 5.3 shows that parent-reported child health conditions, collected using the parent questionnaire[16], also indicated a higher proportion of parent reported developmental concerns among children in the replication trial compared to children in RCT (21.4% vs. 9.7%).

The systematic nature of these differences across all developmental domains suggests this is not a reporting anomaly, but rather indicates the recruitment of a distinctly more developmentally vulnerable population. This vulnerability is not attributable to the lack of early childhood education and care (ECEC) exposure, as a higher proportion of replication trial participants had attended formal ECEC services at any time prior to joining the trial compared to RCT participants (37.1% vs. 22.7%).

These findings may have implications for program implementation and the expected outcomes. The replication trial clearly reached a more developmentally vulnerable population, with higher proportions of children experiencing moderate to severe delays (score of less than 70) across all the assessed developmental domains. These differences are not merely statistically significant but represent clinically meaningful variations. The outcome reports after one and two years of program participation will indicate whether the EYEP model is sufficient to meet the additional need of these children.

A notable finding highlights the discrepancy between parent-reported developmental conditions and standardized assessment outcomes. While parents reported that 21.4% of children in the replication trial had developmental delays or neurodevelopmental disorders, standardized assessments identified a significantly higher rate of developmental delay, with 72.1% showing delays in either cognitive or language development. This substantial gap between parental awareness and the standardized assessment findings suggests that parents may be underestimating developmental issues in their children. If this pattern holds true for at-risk populations, it could lead to a failure to seek early interventions during critical developmental periods, potentially resulting in long-lasting impacts on the children's development.

[16]The health section of questionnaire is a list of yes/no questions asking about presence of specific child health issues with space for parents to note additional concerns not listed.

Table 5.3: Child health and development

	Replication (T)	RCT tm (C)	Differences	
			Dif. (T-C)	p-value
Child BAYLEY scale baseline assessment standard scores, assed by qualified clinicians (population average=100, SD=15 for all standard scores)				
Cognitive average score	80.9	90.0	-9.1	0.004
Language average score	78.6	86.3	-7.8	0.038
Social-Emotional average score	83.2	95.8	-12.7	0.001
% with any delays of cognitive or language	72.1%	33.8%	38 %pt	0.000
Parent reported child health and development				
Hospitalised once since birth (excluding birth)	26.1%	21.9%	4.2 %pt	0.586
Hospitalised multiple times since birth (excluding birth)	8.7%	9.4%	-0.7 %pt	0.906
Developmental delay or Neurodevelopmental disorder	21.4%	9.7%	11.7 %pt	0.070
Child ever had formal childcare prior trial	37.1%	22.7%	14.4 %pt	0.077
Number of children	68	68		

6. Potential Implications for program implementation

The baseline data collection and initial implementation of the replication study yielded several important insights for implementing EYEP.

Recruitment pace

Recruitment has taken longer than anticipated to reach the centre capacity. Building community trust in a new centre and program requires time. Although slower than anticipated recruitment poses challenges to the evaluation timeline and has financial implications, it is not a concern from an operational point of view, especially long-term. Too many new families recruited simultaneously can dilute the resources available for family engagement. As EYEP is a three-year program, moving one-third of children through the centre each year is likely to be a steady state condition. If the centre recruits children to full capacity in the first year, there will be a limited capacity to take in new referrals in years two and three (only relying on dropouts to free spaces), continuing this pattern over time. Consequently, some children in need during years two and three in the geographical area may miss opportunities for participation.

Referral Pathways

Although the decentralised recruitment process leverages local knowledge and networks, it results in significant variations in recruitment pace and types of referral agencies. Notable differences in referral pathways compared with the RCT were observed. The majority of replication trial referrals were from health professionals, whereas the main source of RCT referrals was Child First or Child Protection. This difference may have affected participant vulnerability patterns. The replication trial has a larger proportion of participants with disabilities or complex medical issues, while the RCT had a higher incidence of parenting risk factors, particularly *harsh parenting, abuse, or neglect*. This suggests that future program scaling needs strategies to ensure that children can be recruited from diverse agencies responding to child and family needs.

Population vulnerability

The replication trial successfully engaged a population experiencing significantly higher levels of vulnerability than the original RCT cohort, as evidenced by both higher total risk factors and more moderate and severe developmental delays. Standardised assessments reveal substantially higher rates of delay across all developmental domains, with 73.8% of children showing cognitive or language delays compared to 33.8% in the original RCT. This difference likely related, at least in part, to the concentration of health professional referrals in the replication trial, although other factors cannot be ruled out, such as different time periods, geographic location, or self-selection into the RCT[17]. While children known to child protection may not necessarily show developmental delays, without intervention, they are not able to reach their full potential.

The higher prevalence of moderate to severe developmental delays and increased incidence of children with disabilities or complex medical issues represents clinically meaningful variations. Following these children's outcomes will be important to determine whether the model design's focus on high expectations, individualised learning goals, and relational pedagogy strategies adequately meets their needs. Adjustment of intervention outcome expectations may be needed, especially for developmental delays associated with medical conditions.

Parents' awareness of children's developmental needs

Many primary carers of children in the replication trial may be unaware of their children's developmental needs. While standardised assessments indicate that 73% of the children showed cognitive or language delays and 42.7% of the children had moderate to severe delays, only 21% of parents only reported their children have developmental conditions.

The children's developmental reports provided by the evaluation team to primary carers may increase their awareness of their children's developmental needs and influence parental behaviours, such as continuation of participation in the EYEP, seeking additional clinical intervention, and modified parent-child interactions. Although the effects of these research activities cannot be formally quantified in this study, the 12- and 24-month follow-up reports will investigate service usage and attendance records to provide insights into whether enhanced developmental screening during recruitment is likely to be beneficial.

Family engagement

The extended timeframes between referral and program commencement reflect participating families' complex circumstances, who demonstrate significantly higher rates of psychological distress and exposure to stressful life events compared to children from generally low socioeconomic backgrounds. The multiple engagement attempts often required (up to ten scheduled sessions) for successful consent interviews confirm the need for flexible, responsive, persistent engagement strategies that recognise and accommodate the challenging circumstances of target families.

These findings indicate that successful scaling of intensive early intervention programs requires careful attention to both population characteristics and implementation contexts. The higher levels of vulnerability observed in the replication cohort suggest that the program successfully reaches those in need of intervention, while also highlighting the importance of using strategies that respond to the

[17] Potential participants may be more sceptical about RCT than non RCT research trial and therefore attracted a certain type of population.

local context to cultivate referral networks and the establishment of the new centres in the local service system ecology.

7. Next Steps

Recruitment for the replication study will continue with coordinated efforts by all participating centres [18]. During this final recruitment phase, centres will maintain their focus on identifying eligible families while enhancing support strategies for families transitioning from initial consent to regular program attendance. While each centre will continue to develop and refine recruitment strategies that respond to their local context and community networks, strict adherence to eligibility criteria will be maintained to ensure program fidelity and population comparability.

The evaluation follows a rolling reporting schedule, with comprehensive annual reports. This report presents the baseline data of participants recruited through 30 September 2024. The following report (Q1 2026) will serve dual purposes: presenting 12-month outcomes for the initial cohort, while also providing updated baseline characteristics to include late recruitments. The 24-month outcomes report will include this earliest cohort and updated 12-month outcomes, including late recruitment. This cascading approach ensures that each annual report captures both the longitudinal trajectory of earlier participants and the characteristics of newly engaged families, thus providing a comprehensive view of both program implementation and outcomes over time.

[18] The conclusion date for recruitment of research participating children is yet to be determined.

References

Australian Institute of Health and Welfare (2024). Child Protection Australia 2022–23, Supplementary Data Table S2.3. AIHW Child Protection Collection 2022–23.

Bayley, N., & Glen, P. (2019). Bayley Scales of Infant and Toddler Development, 4th Edition: Australian and New Zealand Standardised Edition.

Al-Ubaydli, O., List, J. A., & Suskind, D. (2019). The science of using science: Towards an understanding of the threats to scaling experiments (No. w25848). National Bureau of Economic Research.

Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. American Journal of Community Psychology, 41(3), 327-350.

Barwick, M., Dubrowski, R., & Petrica, K. (2020). Knowledge Translation: The Rise of Implementation. American Institutes for Research.

Blakemore, T., L. Strazdins and J. Gibbings (2009), Measuring family socio-economic position. In Department of Families, Housing, Community Services and Indigenous Affairs, Australian Social Policy No. 8 (pp. 121–68).

Camilli, G., S. Vargas, S. Ryan, and W.S. Barnett (2010), 'Meta-analysis of the effects of early education interventions on cognitive and social Development', Teachers College Record, 112(3), 579–620.

Duncan, G.J. and K. Magnuson (2013), 'Investing in preschool programs', Journal of Economic Perspectives, 27(2), 109-32.

Johnson S., M. Tamanna and N. Marlow (2014), `Using the Bayley-III to Assess Neurodevelopmental Delay: Which Cut-off Should Be Used?' Pediatric Research, Volume 75, Pages 670–674.

Jordan, B., Tseng, Y., Coombs, N., Kennedy, A., & Borland, J. (2014). Improving lifetime trajectories for vulnerable young children and families living with significant stress and social disadvantage: The Early Years Education Program. BMC Public Health, 14, 965.

Jordan, B., & Kennedy, A. (2019). The Early Years Education Program (EYEP) Model. Changing the Trajectories of Australia's Most Vulnerable Children, Report No. 3. Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., Walters, E. E., & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. Psychological Medicine, 32, 959–976.

Kim, H. Y., Cho, G. J., Ahn, K. H., Hong, S. C., Oh, M. J., & Kim, H. J. (2024). Short-term neonatal and long-term neurodevelopmental outcome of children born term low birth weight. Scientific Reports, 14, Article 2274. https://doi.org/10.1038/s41598-024-52154-9

Tseng, Y., & Borland, J. (2020). Can a Targeted Early Years Program Improve Outcomes for Children Facing Extreme Adversity? Melbourne Institute Research Insights 31/20. Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Tseng, Y., Jordan, B., Borland, J., Clancy, T., Coombs, N., Cotter, K., Hill, A., & Kennedy, A. (2017). Changing the Trajectories of Australia's Most Vulnerable Children. Report No. 1. Participants in the Trial of the Early Years Education Program. Melbourne Institute of Applied Economic and Social

Research, University of Melbourne. https://melbourneinstitute.unimelb.edu.au/research/education/early-years-education.

Tseng, Y., Jordan, B., Borland, J., Coombs, N., Cotter, K., Guillou, M., Hill, A., Kennedy, A., & Sheehan, J. (2019). 24 months in the Early Years Education Program: Assessment of the impact on children and their primary caregivers. Changing the Trajectories of Australia's Most Vulnerable Children Report No. 4. Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Tseng, Y., Jordan, B., Borland, J., Clark, M., Coombs, N., Cotter, K., Guillou, M., Hill, A., Kennedy, A., & Sheehan, J. (2022). Changing the Life Trajectories of Australia's Most Vulnerable Children Report No. 5. 36 months in the Early Years Education Program: Assessment of the impact on children and their primary caregiver. Melbourne Institute of Applied Economic and Social Research, University of Melbourne.

Victorian Department of Human Services (2007). Child development and trauma guide. Melbourne, Australia.

Appendices

Appendix A. 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

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

Appendix B. Description of data source

The replication trial baseline data

Information on participants in the replication trial in this report is taken from the referral information, baseline (initial) data on children and their primary careers, and centres administrative records of child's program attendance.

Baseline data collection occurred after a child's primary caregivers had provided consent to participate in the trial. It included standardised cognitive, language, and social-emotional measures from the Bayley Scales of Infant and Toddler Development (Bayley), 4th Edition, as well as questionnaire data provided by a child's primary caregiver. In total, 69 children have at least one domain of Bayley scores. Bayley data collection generally took place prior to the commencement of the program (orientation) or within 3 months since orientation. However, data for 9 children (13.2%) were collected later than the planned window due to challenges in scheduling despite multiple attempts by the research coordinator. Data from parent questionnaires are available for 70 children. Challenges in scheduling (including parents missing data collection appointments) is the main reasons for non-completion, which is more likely to have occurred for those who withdrew early. Of those 65 who progressed to regular attendance, Bayley scores are available for 62 (95.4%) children, and information from parent questionnaires is available for 61 children (93.9%).

Attendance data

This report also incorporated the children's attendance data gathered by the centres. Information on both orientation and regular attendance was collected. In the original RCT, orientation and regular attendance records were not explicitly differentiated, and regular attendance was defined ad hoc by researchers based on patterns of initial attendance, where regular attendance is regarded as commencing once a child attends EYEP for at least three consecutive full days. For the replication trial, orientation data was explicitly collected based on the definition of orientation provided by PI. Additional clarifications from the data collection team were necessary to ensure consistent data. Consequently, the orientation attendance records of the two trials were not entirely comparable.

The EYEP RCT

Baseline data on the characteristics of children and their primary caregivers are available for a maximum of 136 out of the 145 children for the EYEP RCT. In this report, we focus on the treatment group, where data are available for a maximum of 70 out of 72 children. Bayley standardised scores are available for 68 children. There was additional non-response on some individual variables and data items in the baseline data collection. See the data source section of EYEP report No. 1 (Tseng et al., 2017) for a more detailed description of the data collection.

The standardised child development measures are collected using the Bayley Scales of Infant and Toddler Development (Bayley), 3rd Edition. The replication trial was not able to employ the same scale for consistency due to the phasing out of Bayley III.

Longitudinal Survey of Australian Children (LSAC)

The Longitudinal Study of Australian Children (LSAC) is an extensive study tracking the development of 10,000 children and families across Australia. Data from waves 1 and 2 of the B ('baby') cohort were utilised. Wave 1 interviews were conducted in 2004 with children aged zero to one year, while wave 2 interviews took place in late 2006 and early 2007 with children aged two to three years. The data are weighted to ensure the information is representative of the Australian population. For this report,

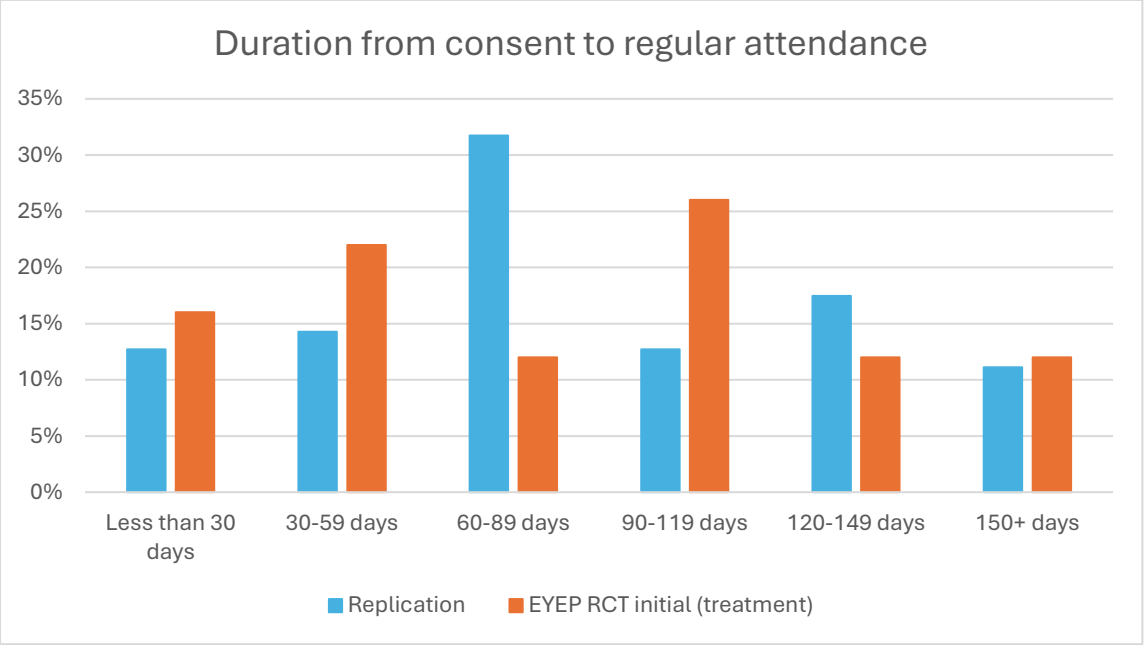
comparisons are limited to children from the bottom 25 percent of households ranked according to a socio-economic status (SES) index, which is constructed from measures of annual family income, parental educational attainment, and occupational status (Blakemore et al., 2009).

LSAC is a biennial survey, where the age distribution of children was concentrated between seven to twelve months and 30 to 42 months, differing from the relatively uniform age distribution of children in the replication trial and EYEP RCT. A concern arose that this difference in age distribution might influence comparisons of characteristics between the children and their primary caregivers. For instance, the older age concentration in LSAC data collection could have provided primary caregivers with greater opportunities to re-enter employment after childbirth. However, robustness analyses in EYEP RCT report No. 1 indicated that the results of the comparison between the two samples were not sensitive to whether ages were controlled. Nevertheless, we avoided comparing information that varies significantly by age, such as "ever hospitalized" or "ever attended ECEC services."

Appendix C. Supplementary tables and figures

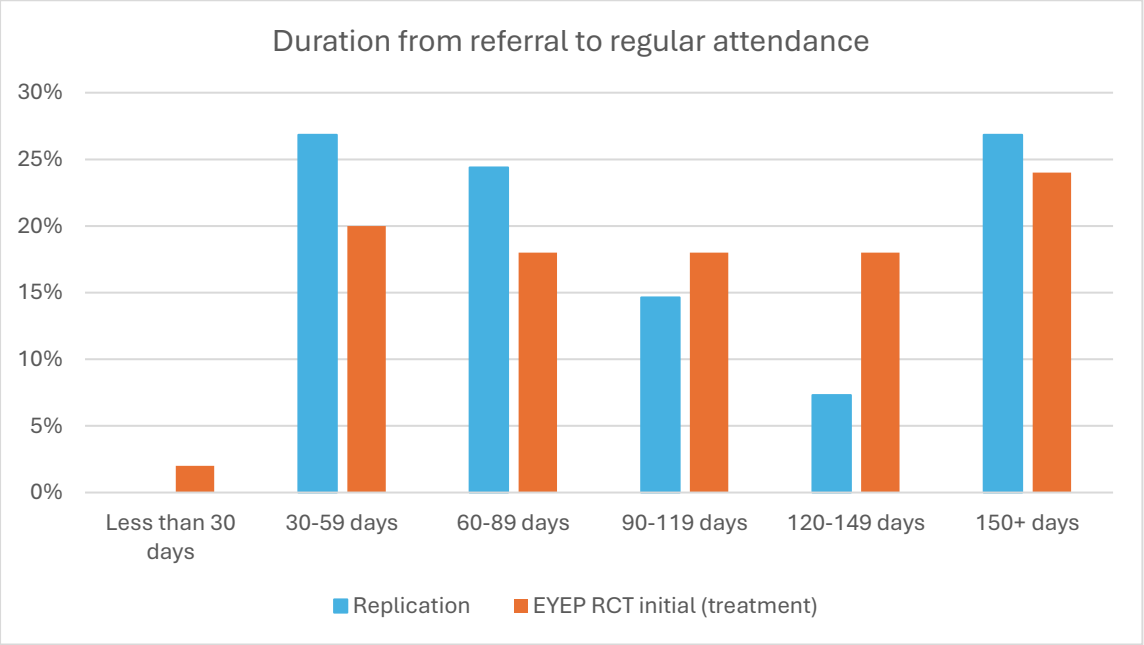
Figures

Figure A.1 Distribution of duration from consent to regular attendance – all children



Note: (1) The sample includes children who commenced regular attendance. (2) The EYEP RCT initial cohort exclude children referred to the trial after their siblings commenced participation in the trial. (3) Some centres commenced recruitment much earlier than the centre's open date. Therefore, to best represent the length required to engage family, children who consented before the centre open date are excluded from this analysis.

Figure A.2 Distribution of duration from referral to regular attendance)



Note: (1) The sample includes children who commenced regular attendance. (2) The EYEP RCT initial cohort exclude children referred to the trial after their siblings commenced participation in the trial. (3) Some centres

commenced recruitment much earlier than the centre's open date. Therefore, to best represent the length required to engage family, children who consented before the centre open date are excluded from this analysis.

Tables

Table A.1 Risk factors of eligible children by whether consent to participate was provided

	Whether consented to participate			
			Differences (Y-N)	
	YES (Y)	NO (N)	Dif. (ppt)	p-value
Demographics				
Gender (% boys)	50.8	70.0	-19.2	0.023
Age at referral (years)	1.39	1.34	0.04	0.720
Risk factors (% children with specific risk):				
Attachment/relationship issues	50.8	42.5	8.3	0.411
Alcohol or Substance use	35.0	25.0	10.0	0.272
Disability/complex medical issues (child or primary carer)	43.3	17.5	25.8	0.002
Mental health issues	80.8	70.0	10.8	0.217
Family violence, current or past	64.2	65.0	-0.8	0.932
Social isolation (family, community, and cultural)	41.7	27.5	14.2	0.120
Inadequate housing/ transience/ homelessness	25.8	17.5	8.3	0.313
Parent/carer under 20 yrs old	7.5	10.0	-2.5	0.652
Lack of ability or willingness to prioritise child's needs	28.3	42.5	-14.2	0.153
Rejection of child	10.0	2.5	7.5	0.074
Harsh, inconsistent discipline, neglect or abuse	9.2	2.5	6.7	0.084
Inadequate supervision	18.3	22.5	-4.2	0.621
Total numbers of factors	5.96	4.85	1.11	0.054
Currently at risk of harm (%)	24.2	25.0	-0.8	0.921
Number of children	120	40		

Note: The p-value quantifies the likelihood of observing the obtained difference if the null hypothesis (Y–N=0) is correct. To account for potential correlations among siblings, robust standard errors are employed in calculating the p-value.

Table A.2 Risk factors of consented children by whether commenced regular attendance

	Whether consented to participate				
				Differences (Y-N)	
	YES (Y)	NO (N)		Dif. (ppt)	p-value
Demographics					
Gender (% boys)	50.8	50.0		0.8	0.939
Age at referral (years)	1.43	1.27		0.16	0.270
Risk factors (% children with specific risk):					
Attachment/relationship issues	52.3	50.0		2.3	0.837
Alcohol or Substance use	33.8	37.5		-3.7	0.726
Disability/complex medical issues (child or primary carer)	44.6	37.5		7.1	0.517
Mental health issues	84.6	75.0		9.6	0.306
Family violence, current or past	61.5	66.7		-5.1	0.642
Social isolation (family, community, and cultural)	49.2	29.2		20.1	0.057
Inadequate housing/ transience/ homelessness	23.1	31.3		-8.2	0.414
Parent/carer under 20 yrs old	9.2	6.3		3.0	0.590
Lack of ability or willingness to prioritise child's needs	32.3	25.0		7.3	0.460
Rejection of child	15.4	2.1		13.3	0.028
Harsh, inconsistent discipline, neglect or abuse	10.8	4.2		6.6	0.216
Inadequate supervision	18.5	18.8		-0.3	0.974
Total numbers of factors	6.17	5.38		0.79	0.246
Currently at risk of harm (%)	30.8	14.6		16.2	0.057
Number of children	65	48			

Note: The analyses exclude children who are either awaiting orientation or currently participating in orientation, as it is uncertain whether they will commence regular attendance.
The p-value quantifies the likelihood of observing the obtained difference if the null hypothesis (Y–N=0) is correct. To account for potential correlations among siblings, robust standard errors are employed in calculating the p-value.

Table A.3 Comparison of risk factors: replication trial vs EYEP RCT intervention group

	Replication (T)	RCT treatment (C)		Differences (T-C) Dif. (ppt)	p-value
Demographics					
Gender (% boys)	50.8	0.60		-0.1	0.412
Age at referral (years)	1.39	1.40		-0.02	0.861
Risk factors (% children with specific risk):					
Attachment/relationship issues	50.8	54.2		-3.3	0.724
Alcohol or Substance use	35.0	36.1		-1.1	0.901
Disability/complex medical issues (child or primary carer)	43.3	26.4		16.9	0.054
Mental health issues	80.8	72.2		8.6	0.301
Family violence, current or past	63.3	52.8		10.6	0.265
Social isolation (family, community, and cultural)	41.7	33.3		8.3	0.371
Inadequate housing/ transience/ homelessness	25.8	20.8		5.0	0.563
Parent/carer under 20 yrs old	7.5	16.7		-9.2	0.109
Lack of ability or willingness to prioritise child's needs	27.5	25.0		2.5	0.753
Rejection of child	10.0	8.3		1.7	0.744
Harsh, inconsistent discipline, neglect or abuse	9.2	33.3		-24.2	0.003
Inadequate supervision	17.5	27.8		-10.3	0.206
Total numbers of factors	5.93	4.65		1.28	0.004
Number of children	120	72			

Note: The p-value quantifies the likelihood of observing the obtained difference if the null hypothesis (T–C=0) is correct. To account for potential correlations among siblings, robust standard errors are employed in calculating the p-value.

Table A.4 Comparison of risk factors of participants who commenced regular attendance: replication trial vs EYEP RCT intervention group

	Replication (T)	RCT treatment (C)		Differences (T-C) Dif. (%pt)	p-value
Demographics					
Gender (% boys)	50.8	0.5		0.0	0.918
Age at referral (years)	1.43	1.37		0.07	0.607
Risk factors (% children with specific risk):					
Attachment/relationship issues	52.3	56.7		-4.4	0.696
Alcohol or Substance use	33.8	38.3		-4.5	0.676
Disability/complex medical issues (child or primary carer)	44.6	21.7		22.9	0.024
Mental health issues	84.6	76.7		7.9	0.368
Family violence, current or past	61.5	53.3		8.2	0.463
Social isolation (family, community, and cultural)	49.2	33.3		15.9	0.150
Inadequate housing/ transience/ homelessness	23.1	21.7		1.4	0.890
Parent/carer under 20 yrs old	9.2	16.7		-7.4	0.289
Lack of ability or willingness to prioritise child's needs	32.3	23.3		9.0	0.347
Rejection of child	15.4	8.3		7.1	0.319
Harsh, inconsistent discipline, neglect or abuse	10.8	33.3		-22.6	0.017
Inadequate supervision	18.5	30.0		-11.5	0.238
Total numbers of factors	6.17	4.63		1.54	0.007
Number of children	65	60			

Note: The p-value quantifies the likelihood of observing the obtained difference if the null hypothesis (T–C=0) is correct. To account for potential correlations among siblings, robust standard errors are employed in calculating the p-value.

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