



Screening Preschoolers' Play and Participation in Early Childhood Education and Care Services: A Feasibility Study

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Abstract

Play and participation are key for children's wellbeing and development. Children who may be at risk of developmental delays can exhibit limited play skills and have difficulty participating in play whilst attending early education and care centres (ECECs). A Play and Participation Screening Service (PPSS) was developed and piloted in ECECs to detect children requiring additional supports. A mixed methods feasibility study using action research evaluated the feasibility of the screening tool using five criteria (acceptability, practicality, implementation, preliminary efficacy and demand) and explored barriers families encounter accessing supports. The PPSS was implemented sequentially across four ECECs with learnings taken from each setting and applied into subsequent settings. A total of 14 families completed the screening and feedback session and 13 completed screening interview, feedback session and ongoing support sessions. Caregivers and educators reported the service was acceptable and practical. Other feasibility criteria were partially met (implementation and preliminary efficacy), and one was not met (demand). Barriers to caregivers accessing services were identified. This study indicates preliminary support for a screening and support service provided to educators and caregivers of children attending ECECs. Findings highlight there is a need for a service navigator to support families in overcoming barriers and accessing recommended ongoing supports.

Keywords Play · Participation · Occupational therapy · Screening service

Introduction

Children's play and participation are key indicators of their development, health, and well-being and are fundamental rights of all children (Convention of the Rights of the Child, 1989; Gilboa & Fuchs, 2018; Khetani et al., 2015; Stagnitti et al., 2023). Children at risk of developmental delays may exhibit limited play skills and experience participation difficulties in preschool/early childhood education and care centres (ECECs) (Gilboa & Fuchs, 2018; Khetani et al., 2015; Stagnitti, 2021). Play abilities and differences can indicate potential disability or developmental delays (Stagnitti, 2021; Stanton-Chapman & Brown, 2015).

In Australia, over 70% of children aged 3–5 years are enrolled in ECEC. In the Australian Capital Territory (ACT), 30,890 children attended ECECs for approximately 33 h per week in March 2022 (Department of Education, 2022; OECD, 2024). Currently, in the ACT, there are no developmental screening services or allied health services directly supporting children's play and/or participation

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within ECECs. As such, a Play and Participation Screening Service (PPSS) was developed and piloted. It aimed to identify developmental issues in children aged 3–5 years in a timely manner and to assess feasibility of the service.

Importance of Part

Importance of Participation and Play

Participating in daily activities is an essential aspect in facilitating children's health, well-being, and development (Gilboa & Fuchs, 2018; Imms et al., 2017; Khetani et al., 2015). Children with reduced participation can experience reduced social engagement and lower quality of life, potentially indicating developmental delay (Gilboa & Fuchs, 2018). Early identification of children experiencing participation difficulties is crucial for timely support, reducing the need for extra support at school and mitigating the risk of poor outcomes throughout life (Oberklaid et al., 2013).

Play is a positive means of increasing children's active participation (Melzer & Palermo, 2016). By participating in play, children can learn skills to overcome barriers to participation in different settings, resulting in enhanced engagement and well-being. Play is enjoyable, spontaneous, and freely chosen (Fleer, 2021; Skard & Bundy, 2004; Stagnitti, 2021). Children benefit from play by learning social rules and skills in various contexts, with positive effects on language acquisition, social competence, motor skills, and cognitive development (Aras, 2016; Guirguis, 2018).

The Role of Adults

Adults, including both caregivers and educators, play an important role in supporting children's development. Early identification of children experiencing participation difficulties by caregivers and educators is crucial for timely support, reducing the need for extra support at school and mitigating the risk of poor outcomes throughout life (Tayler, 2016).

Educators are well-positioned to notice atypical development due to their extensive interaction with multiple children and the skills and knowledge they bring. However, studies have shown that educators face challenges in supporting children's play, including balancing safety concerns with play facilitation and navigating cultural differences in play engagement (Tayler et al., 2016; Tympa et al., 2021).

Caregivers have intimate knowledge of their children's development, personality and culture from their child's birth. Caregivers' understanding of play and age-appropriate development supports children's growth and development and the detection of developmental delays (Choo et

al., 2019). However, some caregivers may not understand the value of play or prioritise it for their children (Wadley & Stagnitti, 2020). Caregivers with limited knowledge of age-appropriate development may be unaware of their children being at risk of developmental problems (Ayob et al., 2022; Choo et al., 2019).

International Developmental Screening Practices

Developmental screening practices vary around the world. The following international examples show developmental screening approaches differ according to health systems and community contexts. In Singapore, Choo et al. (2019) proposed three ways to identify children who may have developmental delays in primary care settings, (i) routine developmental surveillance or screening, (ii) following caregiver concerns identified through caregiver education of child health developmental checklists, and (iii) following concerns raised by preschool teachers or ECEC educators.

In Russia, the Russian Ministry of Health implements an epidemiological screening for mental, behavioural and developmental disorders (MBDDs) in children aged 16–48 months (Simashkova et al., 2023). This involves the use of a parent questionnaire, the Screening Checklist for Parents for Identification of Risk of Mental, Behavioural, and Developmental Disorders in Early Childhood (Simashkova et al., 2023). This screening is limited to nine of the largest regions in Russia.

In Quebec, Canada many models integrate allied health professionals and early childhood special educators in ECECs (Pratte et al., 2025). Some of these Canadian models involve screening children within ECECs while others involve providing direct rehabilitation services to specific children. Models vary based on funding by either the child-care setting or the public health system. Pratte and colleagues (2025) identified that none of the service models responded to all situations and needs and could not recommend one specific model to address all needs.

Australian Screening Practices

In Australia, educators and caregivers do not regularly screen for developmental risks (Wadley & Stagnitti, 2020). It is argued there is insufficient evidence to support universal screening of children at risk of developmental delays and behavioural problems, and inadequate resourcing to do so (Oberklaid et al., 2013). As a result, it may be beneficial for early childhood educators to be equipped with knowledge

and tools to recognise children at risk and how to take appropriate action.

Currently, Maternal, Child and Family Health (MACH) nurses in Australia provide health and developmental screening for children up to age four using the Parents' Evaluations of Developmental Status- Revised (PEDS-R) (Glascoe, 2023). While psychometrically strong (Glascoe & Vishnubhakta, 2023), this tool relies on caregiver reporting without direct observation of children in various settings. The Thriving on Track (TOT) program in Brisbane has established a model to detect developmental delays in children aged 2.5–3.5 years within ECECs (South Brisbane Primary Health Network, 2021). This model involves educators supporting families to complete developmental screening, secondary assessment with child health nurses, and subsequent referrals to allied health services. It is a cross-sector collaboration between Children's Health Queensland, Griffith University, Logan Together, Brisbane South Primary Health Network and other community partners. Its aims were to assist families accessing health and developmental supports for their children and build capacity of educators to identify and respond to children's developmental needs by addressing the unique needs of the community. In 2025, this model was evaluated (Ziegenfusz et al., 2025) qualitatively through focus groups with educators, directors and TOTs team members. Feedback from families was not directly sought. The evaluation findings indicate that this program had meaningful and sustained impact in the community. It demonstrated a promising model for embedding community-based early intervention with potential for broader application across similarly diverse and vulnerable communities. This program was funded by the Queensland Government, however this model has not been adopted by any other state/local government in Australia, including the ACT government. A limitation of this service, was that although children were screened in ECECs, families had to travel to access allied health and developmental services once their child was identified as having needs rather than receive supports in their ECEC.

Place-based health services can limit travel, and time demands for families. This was demonstrated in an Australian study by Vivanti et al. (2014) where the Early Start Denver Model (ESDM) provided children with autism allied health services in long-day care settings (centre-based early childhood education and care services operating extended hours for working families). The authors reported that caregivers could access work and other community activities while their children received intervention in long-day care. A limitation of this approach was that although caregivers were provided with information sessions, there was no formal requirement for home practice, and it was not possible to factor the role of caregivers into the study results. No

other literature of service models using allied health services to screen for children for developmental delays in Australian ECECs has been identified.

In this study, occupational therapy students, under registered occupational therapist supervision, conducted developmental screening of children and supported educators in ECECs to identify concerns related to children's play and participation. Occupational therapists promote health and wellbeing of individuals of all ages, and communities, through occupation, to enable people to participate in activities of everyday life (World Federation of Occupational Therapists [WFOT], 2025). Play and participation in daily activities are primary occupations in early childhood, and occupational therapists possess specialised expertise in analysing children's performance in these areas within their natural environments. In ECECs, occupational therapists can provide context-based services to individual children, families, and ECEC providers using a range of service delivery models (Pratte et al., 2025). These services can include screening children at risk of developmental delays, providing coaching to educators to enhance both educator skills and knowledge and children's participation, and delivering direct services to children and families.

Research Aim and Questions

The aim of this research was to investigate the feasibility of a student-led occupational therapy play and participation screening service for children (3–5 years) attending ECECs with occupational therapy supervisor oversight. It addressed the following questions:

1. To what extent does the PPSS meet five feasibility criteria of Bowen et al. (2009) (i) demand (demand for the intervention); (ii) acceptability (how the participants reacted to the PPSS), (iii) practicality (the extent to which the PPSS could be delivered within a constrained time-frame and resourcing), (iv) implementation (the extent to which the PPSS was fully implemented as planned) and (v) preliminary efficacy (initial test of the effects of the PPSS on caregiver and education knowledge and awareness) (See S1)?
2. What are the barriers families experience in accessing additional supports?

Methods

This action research feasibility study used mixed methods (Koshy et al., 2011; O'Leary et al., 2004). The PPSS was implemented sequentially across four ECECs (Service A,

B, C and D). The service was delivered in its entirety in one ECEC and evaluated so that learnings could be implemented and the service adapted before applying in the next ECEC (Koshy et al., 2011). Ethics approval was given by University of Canberra Human Research Ethics Committee (11775).

Participants

Four ECECs from one organisation in one district of the Australian Capital Territory (ACT) were invited to participate in this study. This organisation was a research partner for a larger study, *A Good Start in Life*, that aimed to evaluate outcomes and processes related to targeted interventions for integrating child and family services in the ACT (Saunders et al., 2022). Snowball and convenience sampling methods were used (Whitehead & Whitehead, 2020). Fliers with a link to an expression of interest form were sent to the ECECs to distribute to all caregivers of children aged 3–5 years attending the four ECECs. Additionally, educators

approached caregivers of children they had concerns about and provided them with a recruitment flier and expression of interest form. Exclusion criteria included having previously accessed speech pathology, occupational therapy or developmental paediatricians, not aged between 3 and 5 years and not attending one of the four ECECs. Written consent was subsequently obtained from caregivers, and children were asked to give verbal assent in their respective ECEC. The occupational therapist and occupational therapy students met with all caregivers who expressed an interest to explain the service. Meetings occurred at mutually agreed times, such as at child drop off or collection times at the ECECs or via Microsoft Teams.

Caregiver and Child Participants There were 14 children screened in the PPSS. Of which, 13 children were identified as requiring ongoing supports. Demographic details of these 13 children and their caregivers are provided in Table 1. Caregivers are provided with a pseudonym (see Table 1).

Educator Participants There were three educators who participated in this study. One worked in centre A and the other two worked in centre C. Educators are provided with pseudonyms (see Table 1).

Table 1 Caregiver and educator pseudonyms, and breakdown of child age and gender, and caregiver gender and nationality

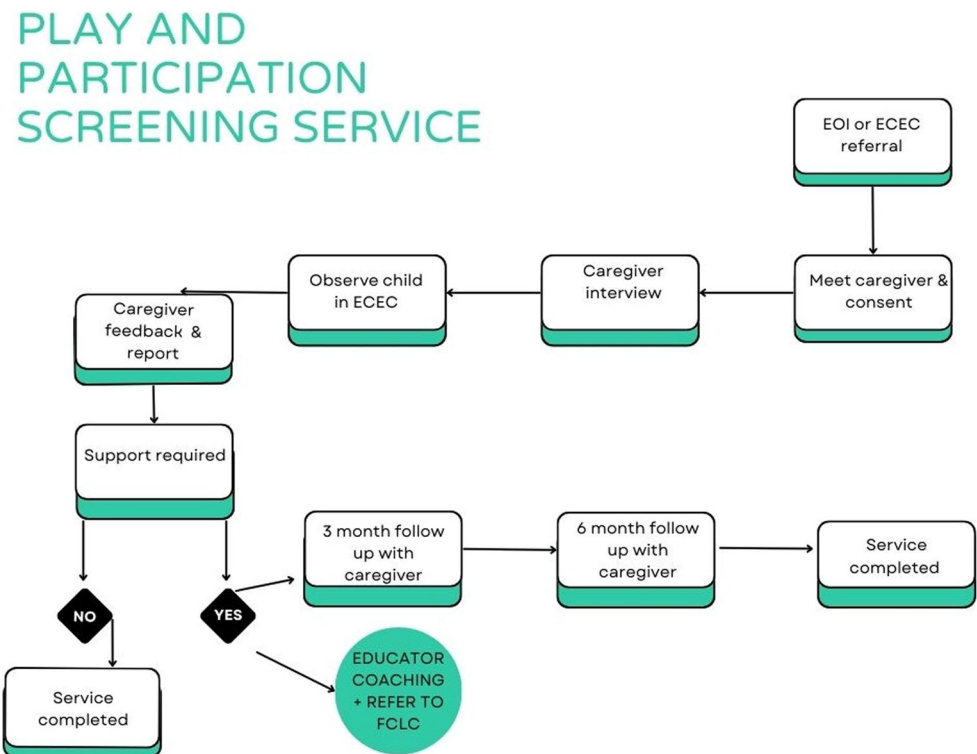
Centre	Child age	Child gender	Caregiver Pseudonym	Care-giver gender	Nationality
A	3 year 4 mo	Male	Mary	Female	Australian
A	4 year 9 mo	Male	Jane	Female	Australian
A	4 year 4 mo	Male	Helen	Female	Australian
A	4 year 0 mo	Male	Ariana	Female	Afghani
A	3 year, 9 mo	Male	Sarita	Female	Nepalese
A	3 year, 5 mo	Male	Taran	Male	Nepalese
A	3 year, 11 mo	Male	Esohe	Female	Nigerian
B	4 year, 11 mo	Male	An	Female	Chinese
B	3 year, 1 mo	Female	Alika	Female	Nigerian
B	3 year, 7 mo	Female	Taneisha	Female	Nigerian
C	4 year, 3 mo	Female	Michelle	Female	Australian
C	3 year, 6 mo	Female	Anne	Female	Australian
C	3 year, 6 mo	Female	Ji-Ho	Male	Korean
Centre			Educator Pseudonym		
A			Sarah		
C			Wendy		
C			Anita		

Intervention (PPSS)

This screening service was led by occupational therapy students with a registered occupational therapist's oversight. It was piloted from August 2022 to December 2023. The PPSS aimed to support caregivers and educators in detecting children at risk of developmental delays based on their play and participation, and to assist caregivers in seeking early support services by increasing their knowledge and awareness of support services, developmental play and participation expectations for children 3–5 years. Occupational therapy students and the supervising occupational therapist delivered the PPSS. A Family and Community Liaison Coordinator (FCLC) (Ramke et al., 2024) supported families to navigate additional support services for children identified as requiring these.

The PPSS involved the six stages described below (see Fig. 1).

1. Accepting referrals and gaining consent from caregivers.
2. Conducting a screening interview with caregivers (see S2). These interview guides were created based on occupational therapy practice, literature on play and participation and experience interviewing caregivers about their children's participation and play across environments. These were not piloted prior to the study.

Fig. 1 Play and Participation Screening Process

3. Completing a parent/carer booklet of the Pretend Play and Enjoyment Developmental Checklist (Stagnitti, 2017). This is a criterion-referenced tool that has standardised scoring guidelines and administration instructions. It assesses (i) pretend play skills, (ii) enjoyment of play and (iii) a child's sense of self (Stagnitti, 2017). It takes 15–30 min to complete. It has established content-validity, test-retest reliability, and face validity (Stagnitti, 2017).
4. Observing preschooler's pretend play and participation at their ECEC by a registered occupational therapist using the Test of Playfulness (TOPS) (Skard & Bundy, 2004) for 15 min. The TOPS has good content validity, internal consistency, and construct validity (Romli & Wan Yunus, 2020). It has intermediate agreement and reliability.
5. Observing preschooler's participation in the ECEC by a registered occupational therapist using a participation observation guide (see S3). This occurred during the same observation period as the pretend play observation. This guide was developed and piloted by the registered occupational therapist with an occupational therapy student prior to administration in this study. The guide was based on occupational therapy practice, literature and experience observing occupational participation of children within ECECs.
6. Providing a screening report and an in-person feedback session with caregivers conducted by the registered occupational therapist.

All child observations were conducted with the registered occupational therapist, who is certified to administer the TOPs. Students participated in all aspects of the screening process and service. Quality assurance was provided by the registered occupational therapist's oversight and involvement in all observations and caregiver meetings.

During caregiver interviews, only when caregivers indicated that their child experienced participation challenges at home or in the community, were they asked to complete the home and community sections of the Young Children's Participation and Environment Measure (YC-PEM) (Khetani et al., 2019). The YC-PEM assesses children's participation in home, day care/preschool and community activities and environmental qualities impacting on participation. The YC-PEM has good internal consistency ranging from 0.68 to 0.96 for the participation and environment scales (Khetani et al., 2015).

For children identified as requiring further supports, the service also included:

1. Interviewing the child's educator about their play and participation knowledge (see S6 and S7) and providing coaching support in the ECEC room by the registered occupational therapist for up to three months duration. Educator interview guides were piloted (see S6 and S7) by an occupational therapy student with educators of 18-month-old to 2-year-old children in one of the ECECs during the development of the PPSS.

2. Providing caregivers with two occupational therapy support meetings with the registered occupational therapist to monitor progress of service referral and provide intermediate support at 3- and 6-months post-screening feedback (see S4 and S5).
3. Referring children with identified needs to a FCLC to link children and caregivers into other child health and community services.

Data Collection

Data was collected to evaluate the feasibility of the PPSS using five criteria of Bowen and colleagues (2009) (see S1). Demand was defined as more than six families in each ECEC enrol in the study based on prior clinical experience. Acceptance/practicality was defined as reports of acceptance and fitting into the lives of educators and caregivers. Implementation was defined as the extent to which the PPSS was implemented as planned. Preliminary efficacy was defined as caregivers and educators demonstrate increased awareness, knowledge and value play and participation and support services improve following involvement in the PPSS (see S1).

Interviews with Caregivers

Caregivers were interviewed by the first author and occupational therapy students at locations suitable to the caregivers on three occasions. Interviews were conducted in person at ECECs, cafes, and local parks, or via Microsoft Teams when

requested. Detailed notes were collected during interviews, and field notes were recorded immediately after as most interviews could not be audio recorded. Microsoft Teams meetings were recorded and transcribed. Caregivers were interviewed twice about their knowledge of play, participation expectations for children (3–5 years) and of support services at the beginning and end of their service involvement. For children requiring ongoing support services, caregivers were also interviewed at 3- and 6-month follow-up timepoints. During both meetings, they were asked about their experiences of participating in PPSS. See S2, S4 and S5 for caregiver interview guides. Pseudonyms are used for illustrative quotes from caregivers, and details of the source and timing of the data are provided (e.g., 3-month follow-up, email, etc.). See Table 1 for details of caregiver pseudonyms matching children and ECECs.

Interviews with Educators

Educator interviews took place on the preschool floors and could not be audio-recorded. The interviews were conducted by occupational therapy students and/or the occupational therapist. Field notes were recorded during the interview and immediately after. Educators were asked about their knowledge of play, participation expectations for children (3–5 years) and of support services twice before and after coaching. Educator guides were based on literature about play and participation expectations of preschoolers. Pseudonyms presented quotes from educators. See Table 1 for details of educator pseudonyms matching ECECs. See Table 2 for a summary of data used in the feasibility analysis.

Other Data Collected

Field notes, email correspondence with caregivers and educators and attendance records were maintained by the research team. This data supported the implementation and demand for the PPSS.

Occupational therapy screening reports were created for each child documenting caregiver reported concerns, caregiver knowledge of play and participation, the child's participation status across home, ECEC and the community and play abilities. These also recorded the TOPs and participation observations of the child within the ECECs. The occupational therapy screening reports were used to indicate whether a child required referral and ongoing support of their play and/or participation and were not included in the data analysis for the feasibility study.

Table 2 Summary of data used in the analysis

Who	When collected	What
Caregiver interviews – all caregivers	Once at the commencement of a service and at the end of the service (x2)	To identify awareness of play and participation To feedback screening results and evaluate service.
Caregiver interviews – for children requiring ongoing supports	At start of service Provided verbal and written feedback after screen 3 and 6 month follow up (x4)	To identify needs Feedback results Follow up barriers and enablers to accessing services and evaluate service
Caregiver emails – from caregivers of children requiring ongoing services	Throughout the data collection	Additional information
Educator interviews	Before and after coaching (x2)	Evaluate service
Attendance and withdrawal records	Throughout the study	Attendance records
Research field notes	Throughout the study	Additional information

Data Analysis

Deductive content analysis (DCA) was used, guided by Kyngäs & Kaakinen's approach (2020). This approach was selected as the aim was to gain a broad view of the feasibility, knowledge and awareness of play and participation of caregivers and educators. Interview data, field notes and emails were coded and analysed in Microsoft Excel (see S8), using a predefined matrix to identify responses and key themes across caregivers. Once all the open codes were recorded into the analysis matrix, the remaining data, such as participants' experiences of participating in PPSS, were analysed inductively.

The first author initially generated a set of codes from a first read-through of the responses. The codes were further refined with subsequent reading and coding. The first author is a registered occupational therapist who designed and provided the PPSS and conducted the caregiver and educator

interviews with students. The third author reviewed the coding. She was familiar with the ECECs but had not provided direct service to families or the ECECs.

Descriptive statistics using percentages are reported to describe elements of feasibility as discussed above.

Qualitative Rigour and Trustworthiness

Qualitative rigour was maintained by prolonged engagement with the research by the first author and the third author reviewing the coding scheme (Braun & Clarke, 2022). Each data item was provided with thorough and repeated attention to generate and refine codes against the whole data set and a predefined coding scheme (Braun & Clarke, 2022). As the data were analysed using a predefined coding scheme, data were not reviewed by participants who were not familiar with the intervention.

To enhance trustworthiness, detailed notes were taken during and immediately after each interview and expanded into rich summaries while the conversation was still fresh. Trustworthiness was strengthened through triangulation across caregiver and educator interviews, PPSS screening reports, and observational field notes, as well as peer debriefing during regular team discussions. An audit trail of analytic decisions was maintained, and reflexive discussion was used throughout the analysis to consider researcher positionality and interpretation. Although interviews were not audio-recorded and member checking was not undertaken, these procedures were used to support the credibility and dependability of the qualitative findings (Creswell & Miller, 2000).

Results

RQ 1: Feasibility Evaluation

Of the five feasibility criterion (Bowen et al., 2009) established, two were fully met (acceptability and practicality), two were partially met (implementation and preliminary efficacy) and one was not met (demand). See Table 3 for the evaluation of feasibility criteria.

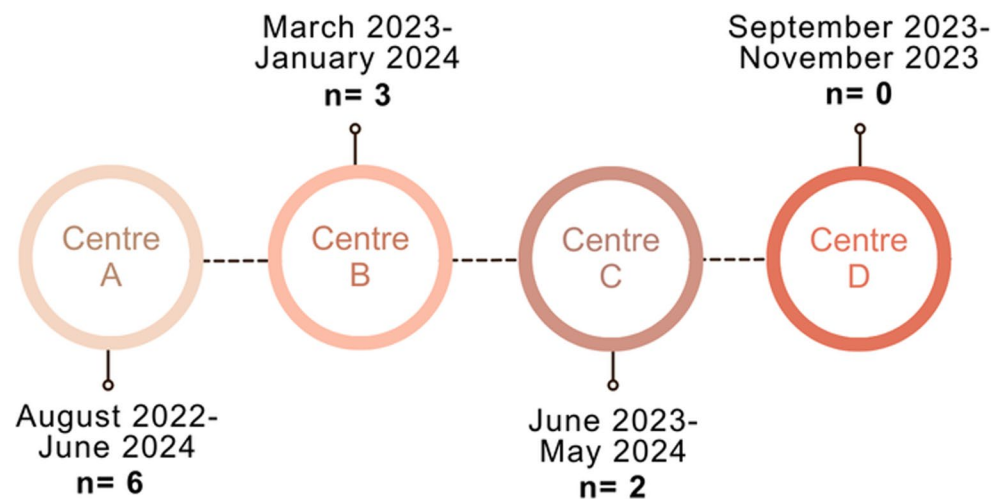
Demand

Only one of the four ECECs (Centre A) met the pre-defined target of more than six recruits for the PPSS (see Fig. 2). Centre A received 9 referrals (one referral was ineligible). Of the eight participants who enrolled in Centre A, one withdrew and another moved interstate. In Centre B, there were three referrals, and all three enrolled and completed the service. In Centre C there were four referrals and enrolments

Table 3 Evaluation of feasibility of PPSS (Bowen et al., 2009)

Feasibility domain	Feasibility question	Criterion for success	Outcome
Acceptability/ Practicality	Is PPSS acceptable to caregivers and early childhood educators and does it fit into their lives?	80% caregivers and educators report satisfaction with it. It also fits into their everyday lives and is accessible	13/14 (93%) caregivers reported acceptability and accessibility. 3/3 (100%) educators reported acceptability and accessibility. MET
Demand	What is the demand for PPSS?	>6 families at each ECEC enrol	1 of 4 ECEC had >6 recruits. NOT MET
Implementation	Is PPSS implemented per the protocol?	>80% of caregivers who enrol in study complete all stages of it >80% of educators who enrol complete the pre and post questionnaire	11/14 caregivers (79%) completed required stages of PPSS. 3/5 educators (60%) completed. PARTIALLY MET
Preliminary efficacy	Do caregivers' and educators' awareness and knowledge play, participation and support services improve following their involvement in it?	>80% affirmative responses from caregivers and educators on post service interviews	100% affirmative responses from caregivers and 67% educators who completed. PARTIALLY MET

Fig. 2 Number of participants across our ECECs



however, one withdrew, and one was lost to follow up at six-month review. Centre D did not have any recruits. Centre D was the service with which the first author had not previously established relationships due to recurrent change of educators and directors. Centre A was the pilot site for the PPSS and had had the longest relationship with the first author.

Caregiver and Child Participants There were 17 expressions of interest from families for the PPSS. One child was ineligible, and two families were too busy to commit. Of the 14 families who completed the initial screening assessment and feedback session, nine families (64%) completed all stages of the study, including educator coaching and caregiver follow-up meetings. Thirteen of the 14 children (93%) required ongoing support. Of these, eight were from a culturally and linguistically diverse (CALD) background (62%). See (Fig. 3) below for the child/family flow through the study.

Educator Participants Only 3/5 educators (60%) completed coaching and follow-up interviews. This was due to educators leaving their positions at the ECECs (see Fig. 4) for the flow of educators through the study). The three educators were degree-trained and were open to coaching and collaborating with the PPSS.

Acceptability/Practicality

All three educators completed the coaching sessions, and all caregivers ($n=11$) who completed the PPSS (100%) reported positive experiences, acceptance and accessibility of this service. Sarah, an educator, valued having occupational therapy services provided in the preschool room and commented “it was wonderful to have another set of eyes with different knowledge and experience.” Another educator, Wendy found it

Helpful to have conversations about different children through different perspectives and the occupational therapist talking to educators after connecting with families.

Helen, a caregiver described the process as “extremely helpful to provide clarity on what can help my child not just what was a problem.” Likewise, Alika reported “it was nice to get to know services and helpful to know why my child needs a referral and how to help her” (6 month follow up interview). Michelle suspected her child might have a developmental disability and found it useful for the occupational therapist to validate her concerns and provide guidance about supports. Even caregivers with sound knowledge from working in child support services reported that PPSS was “good to know things and check things [about my child’s development]” (Anne, 6 month follow up interview).

Implementation

The implementation criterion was mostly unmet. The number of caregivers who completed the required questionnaires and initial interviews and participated in feedback meetings did not meet the criterion of >80% completion rate (see Table 3). Also, the number educators who engaged in coaching and completed post-service interviews did not meet our completion rate (see Table 3). When PPSS was offered to the four centres, the FCLC resigned. As such, only 3/13 (31%) families accessed this service.

Preliminary Efficacy

Preliminary efficacy was determined by asking caregivers and educators to describe their understanding of play, participation and support services at the start of the service and again at the end. All caregivers (100%) reported changes

in knowledge of play and participation expectations and/or access to support services at the end of their engagement in PPSS. For example, one caregiver did not understand the importance of long periods of sleep for her child or how to facilitate his play. At the end of her service, she commented:

“We never looked at sleep or the benefits of engaging our children. We were always at home, now we go to the playground” (Esohe, 6 month follow up interview).

Another caregiver (Ji-Ho) found the PPSS helpful to understand developmental expectations. During the six month follow up interview, he said *“it was good to know about child development because [my child] was our first child.”*

Most caregivers (12/13, 92%) reported that the service increased their awareness of how to facilitate their child’s play and access support services, regardless of their previous knowledge and experience of child development. For example, An worked as an educator and understood how to support her child’s play. Her involvement in PPSS enabled her to reflect on supporting her son’s development. At 6-month follow up meeting she recognised that she had not spent enough play time with him due to her long work hours earlier in the program, which impacted his emotional development. At the 6-month follow-up meeting she reported that she had reduced her work hours and spent more time with her child. She noticed changes in his emotional control since she made this change. She reported:

I have changed my work and am now working part-time and spending more time with him. He enjoys cutting vegetables while I prepare meals. His emotional control has improved (An, 6 month follow up interview).

For some families, the participation challenges lessened as they engaged in external support services through the National Disability Insurance Scheme (NDIS) or private therapy services. Sarita referred her son to the PPSS with language and behavioural concerns. He had difficulty participating in church, community and preschool activities. The occupational therapist observed him running out of the preschool room, directly to the car park, without his mother on one occasion. By the 6-month follow-up meeting, following service navigation, he was accessing the NDIS and his mother noticed significant changes. She reported:

“[My child] is talking all the time now and understands everything. For example, when walking into preschool with his backpack on he felt that it was lighter, and he asked me ‘where is my lunchbox?’ which I was carrying. He wanted to put his lunchbox into his bag” (Sarita, 6 month follow up interview).

Most caregivers (9/13, 69%) reported changes in knowledge of support services for their children following involvement in PPSS. Of the four caregivers who did not report changes, two did not need services, and two were familiar with where and when to access services. One mother described the PPSS as *“fantastic”* because it provided insight into how to access the NDIS, the local public child health service and recommended to start contacting services early (Jane). Another mother (Helen) described PPSS as helpful and said during the 6-month follow up interview, *“I didn’t know where to go and what to do.”* She found it: *“very beneficial in providing knowledge and advice about how to support my child, and what services are available.”*

Furthermore, caregiver (An) also found PPSS helpful to understand where and how to connect with support services:

“Without your help, at this stage, I’d still be confused.... I wouldn’t know where to start. I had seen a few GPs before I met you. They don’t know any services like you do”. (An, 6-month follow up interview)

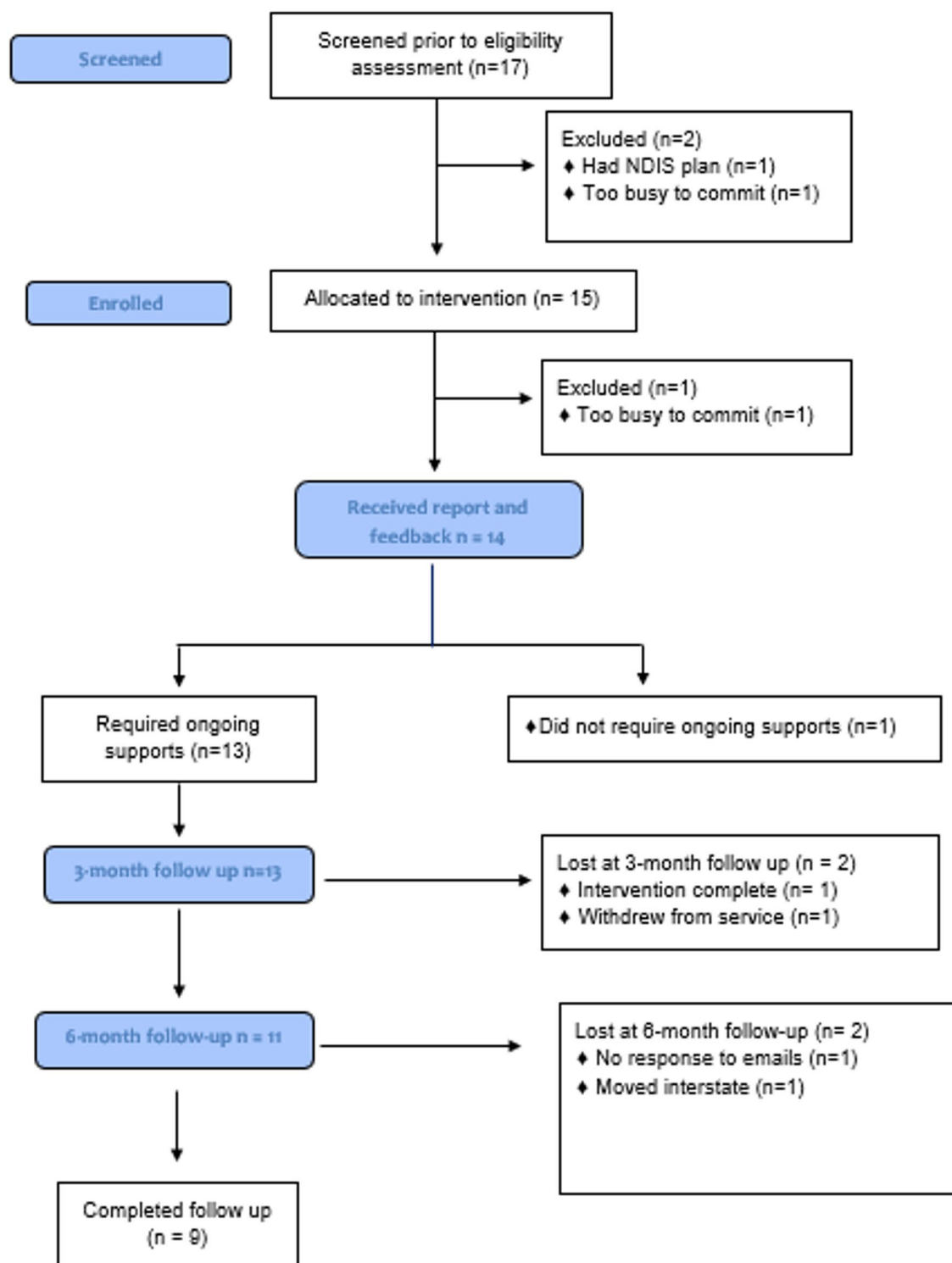
For the educators who participated in this service, 2/3 reported changes in play and participation knowledge and practices. Although they had high knowledge and skill at the commencement of the coaching service, they gained further knowledge on social play and how to support the participation of children with identified developmental delays and differences in their environment. At the completion interview, Educator Sarah reported changes in her knowledge of play, *“I now have a better understanding of expectations of social play milestones,”* while Educator Wendy, said that the coaching *“helped me to notice and direct the [participation] support that I need to give to the children.”* The third educator Anita did not report any changes in awareness or knowledge of play and participation support services following coaching.

RQ 2: Barriers to Accessing Additional Support Services

Caregiver interviews across all participants revealed significant barriers families encountered in accessing recommended support services after participating in the PPSS. Thematic analysis of caregiver and educator responses revealed four kinds of barriers: systemic unavailability of services, migration-related challenges, conflicting advice from health professionals and caregivers’ individual circumstances. Each of these interacted with families’ ability to implement PPSS recommendations and secure timely support for their children. Caregivers from CALD backgrounds experienced migration related challenges and conflicting advice from health professionals.



Child/family participation



◀ Fig. 3 Child/family participation flow chart

Systemic Unavailability

Long waitlists, exclusion from services due to travel, and discontinuity of care were frequent obstacles for families, resulting in months-long delays and considerable distress. Many caregivers ($n=6$) described repeated attempts to engage with multiple paediatricians and occupational therapists, often placing their child on several waiting lists simultaneously. In some cases, access was denied after appointments lapsed during temporary absences (such as travel or visa-related obligations), forcing families to restart the often-complex navigation for government or NDIS support. For example, one mother described her experience:

"I tried to access 4–5 paediatricians and put my son's name on 3 occupational therapy waiting lists. It wasn't until my husband broke down crying that the NDIS planner agreed to provide a little bit of funding" (Jane, initial interview).

Such stories underscore the emotional and logistical toll this barrier imposed on families.

Migration and Visa Status

Families with temporary visas faced pronounced financial and eligibility barriers, as government-funded healthcare and child development supports are not universally available to non-permanent residents. Some caregivers delayed seeking or implementing recommendations due to concerns that their child's developmental challenges could jeopardise permanent residency applications. One caregiver explained,

"I do have some concerns about taking my child to the clinic. I've heard from friends that having children with developmental issues might lead to complications in the permanent residency application process, potentially causing delays or rejection" (An, email sent after 3 month follow up interview).

Other families opted to seek assessments and interventions abroad, where language and cultural match were available, or wait until their residency status was resolved, further delaying access to early support. For example, Ji-ho reported,

"I'm looking for a Korean-speaking occupational therapist and paediatrician in Sydney and can't find one... When we go to Korea, we will access Korean occupational therapy and paediatrician" (3 month follow up interview).

Conflicting advice from health professionals

There was evidence of conflicting advice from health professionals such as general practitioners, MACH nurses, and occupational therapists. Disagreements about developmental concerns occasionally resulted in caregivers disregarding PPSS recommendations, especially when reports from the early childhood setting were not shared with or recognised by primary healthcare providers. The parents of three children took their children to the GP and MACH nurse clinics and were told that the children did not need developmental supports. These parents were from CALD backgrounds. For example, Eshoe reported:

"I took him to the GP and MACH nurse who told me he was fine. I went to the occupational therapy... clinic and they placed him on a waiting list" (6 month follow up interview).

Alika informed:

"I took her to the OT ...clinic and shared the report. Her father took her to the speech pathologist and GP and did not have the report with him. The GP felt that she did not have autism and that seeing a paediatrician was a waste of time... The GP felt she was fine but just some SP delays" (6 months follow up interview).

Competing Life Demands and Advocacy Fatigue

Complex life circumstances including visa applications, work injuries, and the demands of daily life further complicated families' ability to prioritise their child's needs. Advocacy for support services, especially through the NDIS and other bureaucratic channels, led to emotional and physical fatigue. Families who recently migrated and spoke languages other than English faced intensified challenges. For Taran, health, family demands and visa stress delayed his response to seek out services for his son. It was only at the 6-month occupational therapy follow up that he was ready to act. He said *"of course, you point us in the right direction, now I will focus"* (6 months follow up interview).

Discussion

The current study assessed the feasibility of an occupational therapy student-led screening service, the PPSS, that enabled families and educators to access occupational therapy services within ECECs. It also explored barriers families encountered accessing additional supports for their children. Several key findings were identified.



Educator Participation

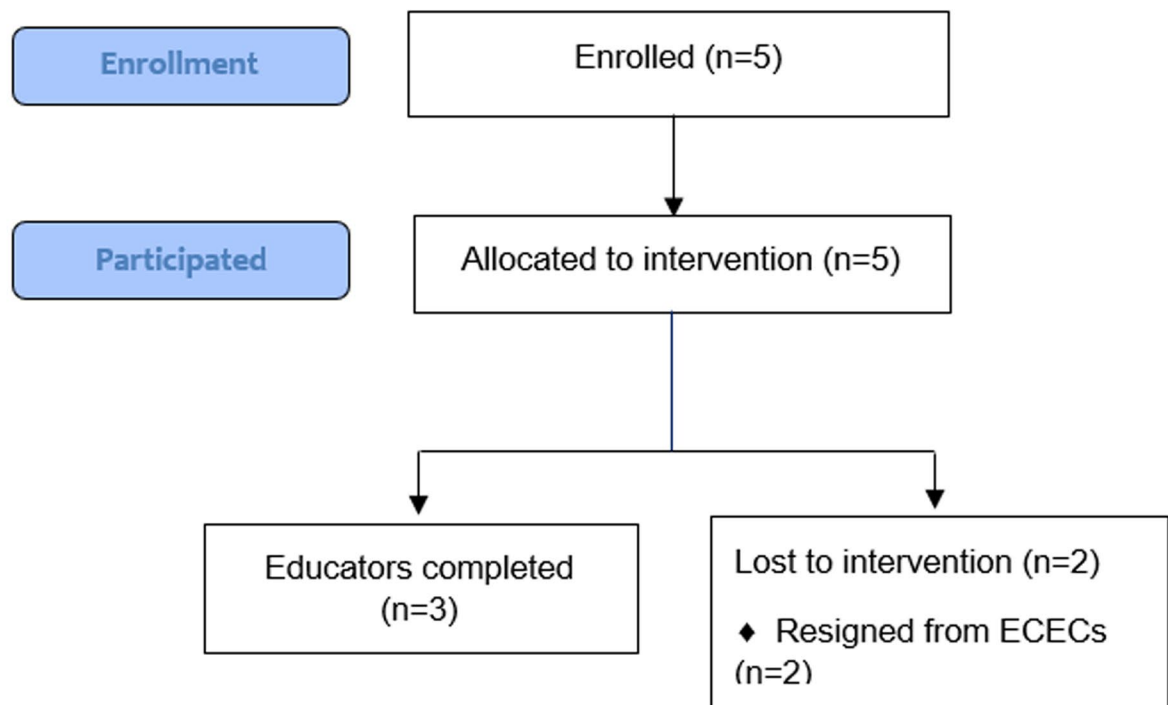


Fig. 4 Educator participation flow chart

Acceptability/Practicality and Preliminary Efficacy

Our results show that PPSS was accepted by all the educators and caregivers who engaged with it. Both groups of participants valued the accessibility and collaborative nature of the service. Preliminary efficacy was demonstrated through changes in caregivers' and educators' knowledge and expectations of play, participation and support services. In the feasibility study of the implementation of ESDM in group-based community ECEC settings for autistic children (Vivanti et al., 2014), the authors found preliminary efficacy demonstrating changes in child outcomes. They did not investigate educator or caregiver outcomes. Our study contributes to the literature by exploring educators' and

caregivers' experiences and changes in the knowledge of educators and caregivers as a parameter of the intervention.

Changes in Educators' Knowledge and Classroom Practices

Enhancing educators' knowledge and classroom practices to detect children at risk of developmental delays and differences has been proposed by Choo et al. (2019), Tayler (2016); and Tayler et al. (2016) to increase early detection and support services. The Effective Early Experiences study by Tayler (2016) was a five-year longitudinal study that collected data from 2010 across Victorian and Queensland ECECs. It assessed the impact of children's participation in

ECECs on their learning and development outcomes. This study demonstrated a low level of teaching behaviour using the Classroom Assessment Scoring System (CLASS) that promoted learning during play activities and found 87% of services were rated in the low-quality range for Instructional Support provided to children during play. The authors identified that educators/teachers with higher qualifications scored more highly on teacher process quality domains, of the CLASS, and improved child cognitive outcomes. In the current study, the educators' strong initial knowledge and openness to coaching highlight the value of professional learning that builds on existing expertise rather than assuming a deficit. Although these degree-trained educators had already demonstrated a high level of competence, the coaching process provided an opportunity to extend their thinking, particularly regarding social play and inclusive participation. This suggests that targeted coaching can contribute to more nuanced and responsive practice, even among highly qualified educators. Future research should explore pre- and post-participation knowledge and practices across a range of educator qualification levels and years of experience, especially given that 50% of educators in an ECEC are diploma-qualified and most others hold vocational certificates (Australian Children's Education and Care Quality Authority [ACECQA], 2025). Australian government regulations currently require the attendance of only one tertiary-qualified early childhood teacher 60% of the time (ACECQA, 2025).

Changes in Caregivers' Knowledge and Expectations of Play, Participation and Accessing Supports for Their Children

Most caregivers were familiar with play and participation expectations of children aged 3–5 years; however, some were not aware of differences in play that their children experienced compared to same-aged peers. This finding was similar to findings by Ayob et al. (2022) who identified that caregivers in South Africa had a limited understanding of age-appropriate developmental stimulation for children and wanted to know about age-specific development.

The retention rate of caregivers across the 3- and 6-month follow-up meetings was high, demonstrating that caregivers valued and engaged in these contact points with the occupational therapist and occupational therapy students. This led caregivers to learn about and access additional support services for their children. Previous research has demonstrated families' difficulty navigating services in the ACT and the value of a Family Community Liaison Coordinator (FCLC)'s role in supporting this (Ramke et al., 2024). Likewise, Russo et al. (2021) identified families experienced

difficulties navigating in the NDIS due to limited capacity to navigate the system and other factors influencing caregivers' ability to effectively advocate on behalf of their child/ren to access supports (Russo et al., 2021). In this current study, the FCLC, the occupational therapist and students supported families to navigate with services throughout their journey in the PPSS and families experienced service access success with this support.

Demand

We did not meet our pre-defined demand criteria of more than six families referred to PPSS from the four ECECs. From the PPSS experience, it is hypothesised that building community relationships through provision of outreach allied health services or ECEC's employing allied health/specialised education support staff may best support future implementation of a similar service model. For example, in Québec there are ECECs that directly purchase specialised support services using a provincial Disabled Childcare Allowance (Pratte et al., 2025). These centres use specialists to support the inclusion of children identified with specific support needs or provide a child specific evaluation with recommendations. This funding model targets individual children with pre-identified needs, not at a screening level for all children in the centre which PPSS provided. In the ACT, funding for allied health support within ECECs to screen children or to have time to build rapport with ECEC communities does not exist. Our study was limited in time, and we were unable to effectively build rapport with Centre D to gain referrals.

Implementation

The implementation criteria for PPSS were mostly unmet due to external factors that could not be anticipated or controlled for. Although most caregivers completed all stages of the service, the educator retention rate was not met due to high staff turnover at ECECs. This high turnover is consistent across the Australian ECEC educator sector (Fenech et al., 2022; McDonald et al., 2018). A key service element was the initial plan to involve the FCLC (Ramke et al., 2024) to support service navigation. However, the person in this position resigned early in the PPSS implementation phase. Consequently, service navigation support for families was limited to the 3- and 6-month follow-up meetings with the occupational therapist and students. These follow-up meetings with the occupational therapist and students were valued by caregivers as the retention rate of caregivers was high. Russo and colleagues (2021) found that families strongly preferred direct person-to-person contact with support providers when engaging with the NDIS. It may be that

the high rates of caregivers' participation in the follow-up meetings in our study occurred because face-to-face contact was provided at a time and location convenient for caregivers.

Barriers Families Experienced in Accessing Additional Supports

During the 3-and 6-month follow-up meetings with caregivers it became evident that there were many barriers to implementing recommendations made by the PPSS. To facilitate change in caregivers' support-seeking behaviour, these barriers need to be considered.

An unanticipated outcome of our study was that most families were from CALD backgrounds, with over a quarter on temporary Australian visas. Caregivers faced challenges in navigating local government services and applying for permanent residency, alongside accessing early support for their children with developmental differences. Many could not access government-funded healthcare or child development supports, including childcare subsidies. Concerns about jeopardising permanent visa applications led some caregivers to delay seeking paediatric assessments and allied health services until after securing residency. For some, our free, grant-funded PPSS was their only support option. Research indicates that individuals from CALD backgrounds face additional complexities in navigating the NDIS due to factors like health literacy, English fluency, and cultural influences on self-advocacy (Chu et al., 2024). These challenges made it difficult for caregivers to seek necessary services, necessitating support from the FCLC and occupational therapist.

In addition to caregivers from CALD backgrounds, our caregivers were required to advocate for their child and seek out additional support services. Research by Russo et al. (2021) highlighted the stress caregivers faced in advocating for their children instead of receiving system navigation assistance, leading to physical, mental, and emotional fatigue from repeatedly explaining their child's disability. Our study found similar fatigue among caregivers, particularly those who had recently migrated and primarily spoke languages other than English, facing additional advocacy challenges with the NDIS. These barriers collectively delayed children's access to essential early support services.

Our findings align with previous research where migrant families' readiness to understand their child's presenting needs and accept supports were influenced by post-migration stressors such as economic stress, loneliness, discrimination, family concerns and worrying about family and friends overseas (Chen et al., 2017). Some caregivers wanted to engage with service providers from their own cultural backgrounds and recognised that service access may

be easier when they visited their home countries. This is consistent with findings from Knipping et al. (2023), who found that caregivers preferred services that supported their cultural beliefs and had tailored culturally diverse services. In the ACT, such services for children and families were not available. This delayed their implementation of recommendations made by the PPSS and their child's access to early support services until they returned to their countries of origin.

An unexpected finding were the differing perspectives among health professionals, such as general practitioners (GPs), MACH nurses, and occupational therapists, regarding children's developmental delays. While the PPSS recognised the need for early support based on observations in early childhood education settings, some families reported that GPs and MACH nurses disagreed with these assessments. Barriers to effective developmental screening include providing false reassurance, not addressing caregiver concerns, and over-relying on caregiver questionnaires (Gellach, 2016). Notably, GPs and MACH nurses did not observe the children in their daily environments and some families did not share their screening reports, which sometimes led to caregivers disregarding PPSS recommendations. For instance, one family withdrew their child from PPSS after being told by their GP and MACH nurse that there were no developmental concerns, despite the PPSS identifying issues with social communication and play skills within the ECEC context.

Limitations

As this was a pragmatic feasibility study of a pilot service, several limitations should be noted. We did not conduct a cost analysis and therefore cannot comment on the model's cost-effectiveness. During the study, the Family and Community Liaison Coordinator resigned, limiting follow-up support for families and preventing us from determining the full impact of this role on service navigation. The service was implemented across four ECECs within one organisation in one district of the ACT, which limits its transferability to other settings. In addition, interviews were not audio-recorded, and member checking was not undertaken; instead, we relied on detailed contemporaneous note-taking and expanded summaries. While this approach supported data collection in a busy service context, it may have limited the completeness and verbatim accuracy of the accounts. Future research should include audio-recordings, participant checking of summaries or themes, and additional qualitative safeguards to further strengthen trustworthiness. Finally, we relied primarily on interview data from educators and caregivers to evaluate preliminary efficacy rather than pre/post measures or standardised instruments, and we

were unable to capture the views of those who withdrew from the service.

Conclusion

This pragmatic study was able to recruit 14 children/families and three educators across four ECECs. This study makes several important contributions to both occupational therapy and early childhood education literature. From an occupational therapy perspective, it demonstrates the viability of occupational therapy students, under registered occupational therapist supervision, delivering developmental screening and support services in early childhood settings. Using students in such a model contributes to evidence for sustainable workforce development approaches. The findings extend occupational therapy's scope from predominantly diagnosis-dependent, reactive services to preventative, population-health approaches in early childhood contexts. Additionally, the study reinforces occupational therapy's unique contribution in using play and participation observations in natural environments as valid indicators of developmental concerns, complementing traditional caregiver-report screening tools.

The high retention rate of caregivers in follow-up meetings highlights occupational therapy's valuable role in service navigation, supporting families in understanding and accessing external support services. This is particularly significant for families from CALD backgrounds on temporary visas, who face additional systemic barriers to accessing early intervention services. This was reflected in the following statement by a mother on a temporary visa, "because of you, I have a pathway" (Sarita, six months follow up). These findings provide evidence for policy advocacy regarding equitable access to early childhood support services regardless of visa status. In nearly all of these families, children were missing out on important support services that would ultimately benefit their play and participation in both the ECEC and everyday life. Our study demonstrated that our participants valued the provision of occupational therapy services provided within an ECEC context to detect children with additional needs and support families navigate and access services in their communities. Future studies could investigate the cost analysis of this approach, application within other communities and explore the use of other allied health professionals such as speech and language pathologists.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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References

- Aras, S. (2016). Free play in early childhood education: a phenomenological study. *Early Child Development and Care*, 186(7), 1173–1184. <https://doi.org/10.1080/03004430.2015.1083558>
- Australian Children's Education and Care Quality Authority [ACECQA] (2025). <https://www.acecqa.gov.au/qualifications-0/qualification-requirements/qualifications-centre-based-services-children-preschool-age-or-under>
- Ayob, Z., Christopher, C., & Naidoo, D. (2022). Exploring caregivers' perceptions on their role in promoting early childhood development. *Early Child Development and Care*, 192(9), 1462–1476. <https://doi.org/10.1080/03004430.2021.1888943>
- Bowen, D. J., Kreuter, M., Spring, B., Cofta-Woerpel, L., Linnan, L., Weiner, D., Bakken, S., Kaplan, C. P., Squiers, L., Fabrizio, C., & Fernandez, M. (2009). How we design feasibility studies. *American Journal of Preventive Medicine*, 36(5), 452–457. <https://doi.org/10.1016/j.amepre.2009.02.002>
- Braun, V., & Clarke, V. (2022). *Thematic analysis: A practical guide to understanding and doing*. SAGE Publications Ltd.
- Chen, W. P., Hall, B. J. P., Ling, L. P., & Renzaho, A. M. N. P. (2017). Pre-migration and post-migration factors associated with mental health in humanitarian migrants in Australia and the moderation effect of post-migration stressors: findings from the first wave data of the BNLA cohort study. *The Lancet Psychiatry*, 4(3), 218–229. [https://doi.org/10.1016/S2215-0366\(17\)30032-9](https://doi.org/10.1016/S2215-0366(17)30032-9)
- Choo, Y. Y., Agarwal, P., How, C. H., & Yeleswarapu, S. P. (2019). Developmental delay: identification and management at primary care level. *Singapore Medical Journal*, 60(3), 119–123. <https://doi.org/10.1162/smedj.2019025>
- Chu, N., Pho, J., Dark, L., Tan, A., Alford, S., Tang, C. Y., Ellison, C., & Lim, D. (2024). A scoping review into the service needs of people from culturally and linguistically diverse backgrounds living with disability to engage in meaningful occupations. *Australian Occupational Therapy Journal*, 71(3), 408–422. <https://doi.org/10.1111/1440-1630.12938>

- Convention of the Rights of the Child (1989). U.N.TS. 12. <https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child>
- Creswell, J. W., & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory Into Practice*, 39(3), 124–130. https://doi.org/10.1207/s15430421tip3903_2
- Department of Education. (2022). *March quarter 2022 Early Childhood Education and Care sector report*. Australian Government. <https://www.education.gov.au/early-childhood/early-childhood-data-and-reports/quarterly-reports-usage-services-fees-and-subsidies/march-quarter-2022-report>
- Fenech, M., Wong, S., Boyd, W., Gibson, M., Watt, H., & Richardson, P. (2022). Attracting, retaining and sustaining early childhood teachers: An ecological conceptualisation of workforce issues and future research directions. *The Australian Educational Researcher*, 49(1), 1–19.
- Fleer, M. (2021). *Play in the early years*. Cambridge University Press.
- Gellasch, P. (2016). Developmental screening in the primary care setting: A qualitative integrative review for nurses. *Journal of Pediatric Nursing*, 31(2), 159–171. <https://doi.org/10.1016/j.pedn.2015.10.001>
- Gilboa, Y., & Fuchs, R. (2018). Participation Patterns of Preschool Children With Intellectual Developmental Disabilities. *Occupational Therapy Journal of Research*, 38(4), 261–268. <https://doi.org/10.1177/1539449218766888>
- Glascoe, F. P. (2023). *Parents' Evaluation of Developmental Status-Revised (PEDS-R)*. PEDSTest.com. www.pedstest.com
- Glascoe, F. P., & Vishnubhakta, V. (2023). *Parents' Evaluation of Developmental Status-Revised (PEDS-R): Psychometric research*. PEDSTest.com. www.pedstest.com
- Guirguis, R. (2018). Should We Let Them Play? Three Key Benefits of Play to Improve Early Childhood Programs. *International Journal of Education and Practice*, 6(1), 43–49.
- Imms, C., Granlund, M., Wilson, P. H., Steenbergen, B., Rosenbaum, P. L., & Gordon, A. M. (2017). Participation, both a means and an end: A conceptual analysis of processes and outcomes in childhood disability. *Developmental Medicine and Child Neurology*, 59(1), 16–25. <https://doi.org/10.1111/dmcn.13237>
- Khetani, M. A. S., Graham, J. E. P., Davies, P. L. P., Law, M. C. P., & Simeonsson, R. J. P. (2015). Psychometric Properties of the Young Children's Participation and Environment Measure. *Archives of Physical Medicine and Rehabilitation*, 96(2), 307–316. <https://doi.org/10.1016/j.apmr.2014.09.031>
- Khetani, M., Bosak, D., Jarvis, J., & Teplicky, R. (2019). *Young Children's Participation and Environment Measure (CY-PEM): User guide version 1.2*. CanChild Centre for Childhood Disability Research, McMaster University.
- Knipping, D., Garnett, A., & Jiang, B. B. (2023). Access and Use of Services by Caregivers of Older Adults: A Scoping Review of Cultural and Linguistic Diversity. *Journal of Applied Gerontology*, 42(7), 1672–1686. <https://doi.org/10.1177/07334648231158490>
- Koshy, E., Koshy, V., & Waterman, H. (2011). *Action research in healthcare*. Sage.
- Kyngäs, H., & Kaakinen, P. (2020). Deductive content analysis. In H. Kyngäs, K. Mikkonen, & M. Kääriäinen (Eds.), *The Application of Content Analysis in Nursing Research* (pp. 23–30). Springer International Publishing.
- Kyngäs, H., Kääriäinen, M., & Elo, S. (2020). The trustworthiness of content analysis. In H. Kyngäs, K. Mikkonen, & M. Kääriäinen (Eds.), *The Application of Content Analysis in Nursing Science Research* (pp. 41–48). Springer International Publishing.
- McDonald, P., Thorpe, K., & Irvine, S. (2018). Low pay but still we stay: Retention in early childhood education and care. *Journal of Industrial Relations*, 60(5), 647–668.
- Melzer, D. K., & Palermo, C. A. (2016). Mommy, you are the princess and I am the queen': How preschool children's initiation and language use during pretend play relate to complexity. *Infant and Child Development*, 25(2), 221–230. <https://doi.org/10.1002/icd.1927>
- O'Leary, C., Rao, S., & Perry, C. (2004). Improving customer relationship management through database/Internet marketing: A theory-building action research project. *European Journal of Marketing*, 38(3/4), 338–354. <https://doi.org/10.1108/03090560410518585>
- Oberklaid, F., Baird, G., Blair, M., Melhuish, E., & Hall, D. (2013). Children's health and development: approaches to early identification and intervention. *Archives of Disease in Childhood*, 98(12), 1008–1011. <https://doi.org/10.1136/archdischild-2013-304091>
- OECD. (2024). *Enrolment rate in early childhood education (indicator)*. Organisation for Economic Co-operation and Development. <https://data.oecd.org/students/enrolment-rate-in-early-childhood-education.html>
- Pratte, G., Couture, M., Camden, C., Poissant, J., & Beudoin, A. J. (2025). Services delivered by specialized professionals in child-care settings in Quebec, Canada: Strengths and limitations of current service delivery models. *Child: Care Health and Development*, 51(4), e70110. <https://doi.org/10.1111/cch.70110>
- Ramke, J., Giugni, S., Kish, A., Hilly, C., McKechnie, J., Herbert, J., & Davey, R. (2024). A reflective case study examining the Family and Community Liaison Coordinator (FCLC) role in early childhood development. *Journal of Children and Young People's Health*, 5(1), 17–23. <https://doi.org/10.33235/jcyph.5.1.17-23>
- Romli, M. H., & Wan Yunus, F. (2020). A systematic review on clinical properties of play instruments for occupational therapy practice. *Occupational Therapy International*, 1–19. <https://doi.org/10.1155/2020/2490519>
- Russo, F., Brownlow, C., & Machin, T. (2021). Parental experiences of engaging with the National Disability Insurance Scheme for their children: A systematic literature review. *Journal of Disability Policy Studies*, 32(2), 67–75. <https://doi.org/10.1177/1044207320943607>
- Saunders, V., Beck, M., McKechnie, J., Lincoln, M., Phillips, C., Herbert, J., & Davey, R. (2022). A Good start in life: Effectiveness of integrated multicomponent multisector support on early child development—Study protocol. *PLoS One*, 17(8), e0267666–e0267666. <https://doi.org/10.1371/journal.pone.0267666>
- Simashkova, N. V., Ivanov, M. V., Boksha, I. S., Klyushnik, T. P., Zozulya, S. A., & Sharlay, I. A. (2023). Epidemiological screening for the risk of mental, behavioral and developmental disorders, including autism, in early childhood: Data for Russia 2017–2019. *Journal of Autism and Developmental Disorders*, 53(10), 4090–4099. <https://doi.org/10.1007/s10803-022-05546-7>
- Skard, G., & Bundy, A. C. (2004). Chapter 4 Test of Playfulness. In D. L. Parham, & L. S. Fazio (Eds.), *Play in Occupational Therapy for Children* (Second ed., pp. 72–93). Mosby Elsevier.
- South Brisbane Primary Health Network. (2021). *Thriving on track evaluation final report*. Siggins Miller.
- Stagnitti, K. (2017). *Pretend Play Enjoyment Developmental Checklist*. Coordinates Publication.
- Stagnitti, K. (2021). *Learn to play therapy: Principles, processes and practical activities* (Second ed.). Learn to Play.
- Stagnitti, K., Paatsch, L., Nolan, A., & Campbell, K. (2023). Identifying play skills that predict children's language in the beginning of the first year of school. *Early Years*, 43(2), 213–227. <https://doi.org/10.1080/09575146.2020.1865280>
- Stanton-Chapman, T. L., & Brown, T. S. (2015). A strategy to increase the social interactions of 3-year-old children with disabilities in an inclusive classroom. *Topics in Early Childhood Special Education*, 35(1), 4–14. <https://doi.org/10.1177/0271121414554210>
- Taylor, C. (2016). *The E4Kids study: Assessing the effectiveness of Australian early childhood education and care programs. Overview of findings at 2016*. Melbourne Graduate School of Education. <http://www.melbournegraduateschool.edu.au/e4kids>

- [tps://www.fwc.gov.au/documents/sites/caeremuneration/submissions/bundle-b-pt5b-5063-5423-r-ieu.pdf](https://www.fwc.gov.au/documents/sites/caeremuneration/submissions/bundle-b-pt5b-5063-5423-r-ieu.pdf)
- Taylor, C., Cloney, D., Adams, R., Ishimine, K., Thorpe, K., & Nguyen, T. K. C. (2016). Assessing the effectiveness of Australian early childhood education and care experiences: study protocol. *Bmc Public Health*, 16(352), 352–352. <https://doi.org/10.1186/s12889-016-2985-1>
- Tympa, E., Karavida, V., & Charissi, A. (2021). Exploring reversed conditions of early years pre-service teacher training on pretend play. *European Early Childhood Education Research Journal*, 29(2), 224–236. <https://doi.org/10.1080/1350293X.2021.1895270>
- Vivanti, G., Paynter, J., Duncan, E., Fothergill, H., Dissanayake, C., & Rogers, S. J. (2014). Effectiveness and feasibility of the Early Start Denver model implemented in a group-based community childcare setting. *Journal of Autism and Developmental Disorders*, 44(12), 3140–3153. <https://doi.org/10.1007/s10803-014-2168-9>
- Wadley, C. C., & Stagnitti, K. (2020). The views and experiences of teachers, therapists and integration aides of play-based programs within specialist school settings. *Journal of Occupational Therapy Schools & Early Intervention*, 13(3), 250–263. <https://doi.org/10.1080/19411243.2020.1732261>
- Whitehead, D., & Whitehead, L. (2020). Data collection and sampling in qualitative research. In D. Whitehead, C. Ferguson, G. LoBiondo-Wood, & J. Haber (Eds.), *Nursing and midwifery research: Methods and appraisal for evidence-based practice* (Sixth ed., pp. 118–135). Elsevier Australia.
- World Federation of Occupational Therapists [WFOT] (2025). *Definitions of occupational therapy from member organisations*. <https://wfot.org/about/about-occupational-therapy>
- Ziegenfusz, S., Dunstan, K., Burkitt, T., Graham, L., & Siyambalapitiya, S. (2025). *Evaluating the Thriving on Track Initiative: A qualitative case study evaluation of capacity building for early childhood educators final report*. https://bsphn.org.au/images/child-youth-families/evaluating-tots_a-qualitative-case-study-evaluation-june-2025.pdf

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