



ELSEVIER

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Child Abuse & Neglect

journal homepage: www.elsevier.com/locate/chiabuneg

Influence of placement stability on developmental outcomes of children and young people in out-of-home care: Findings from the Pathways of Care Longitudinal Study

Nafisa Asif^{a,*}, Courtney Breen^{a,b}, Robert Wells^a

^a Department of Communities and Justice, FACS Insights, Analysis and Research, 6 Parramatta Square, 10 Darcy Street, Parramatta, NSW 2150, Australia

^b Adjunct Senior Lecturer, National Drug and Alcohol Research Centre, UNSW, Sydney 2052, Australia

ARTICLE INFO

Keywords:

Developmental outcomes
Out-of-home care
Placement stability

ABSTRACT

Background: Placement stability is an important indicator of the functioning of an out-of-home care system. Previous research suggests that frequent placement changes have a negative impact on the outcomes for children and young people in out-of-home care.

Objective: This paper examines the association between placement stability in out-of-home care and children's socio-emotional, cognitive and physical health outcomes.

Participant and setting: The Pathways of Care Longitudinal Study (POCLS) is the first large-scale prospective longitudinal study of children in out-of-home care in Australia. The sample consists of any study child who participated in any of the first three waves of the POCLS interview.

Methods: Unweighted data from the first three waves of the POCLS interview and administrative data was used. A measure of placement stability was developed that accounted for both number of placements and length of time in care. Mixed effect modelling was used to examine the link between placement stability and children's developmental outcomes.

Results: Placement stability was found to have a significant association with socio-emotional, cognitive (non-verbal) and physical health (gross and fine motor skill) development. A number of other factors were also found to be associated with positive development.

Conclusions: The findings support the existing evidence that placement stability is an important factor for children's development. Other factors including placement type, carer wellbeing and carer support are also important for positive development. Appropriate policy and practice intervention to support children and families to improve placement stability is fundamental to achieving positive developmental outcomes for children in out-of-home care.

1. Introduction

Children who experience abuse and neglect, and who are subsequently placed in out-of-home care have poorer results on a range of developmental outcomes including physical and mental/emotional health, low educational attainment, unemployment and involvement in the criminal justice system compared to children who have not been maltreated and/or placed in out-of-home care (Gypen et al., 2017; Walsh et al., 2018). A number of factors have been found to be associated with developmental outcomes for children in out-of-home care: child and birth family characteristics (e.g., age, gender, cultural background), pre-care history of

* Corresponding author.

<https://doi.org/10.1016/j.chiabu.2023.106145>

Received 25 July 2022; Received in revised form 14 February 2023; Accepted 12 March 2023

Available online 31 March 2023

0145-2134/© 2023 Elsevier Ltd. All rights reserved.

maltreatment, exposure to trauma/abuse, neighbourhood and community characteristics, placement characteristics (e.g., foster, relative/kinship, residential), stability of placement, carer characteristics (e.g., age, parenting skills), carer wellbeing and experiences (e.g., support, satisfaction with services) (Brown et al., 2019; Delfabbro, 2020; Pritchett et al., 2013; Rock et al., 2015; Strijker et al., 2008; Tarren-Sweeney, 2008; Walsh et al., 2018; Winokur et al., 2014). In a recent systematic review, it was concluded that children in relative/kinship care experience fewer behavioural problems, mental health disorders and better wellbeing compared to children placed in foster care (Winokur et al., 2018). Co-placement with siblings, maintaining birth family relationships and having close relations with their mother have also been found to be associated with better socio-emotional wellbeing of children in out-of-home care (Cashmore & Taylor, 2020; Hegar & Rosenthal, 2011; Hiller & St Clair, 2018; Rock et al., 2015). Some of these factors also influence a child's potential to recover from attachment- and trauma-related psychopathology (Tarren-Sweeney, 2008, 2016).

Placement stability, in particular, allows children to develop attachment and trusting relationships with caregivers and enhances their sense of security and belonging (Cashmore & Paxman, 2006; Tarren-Sweeney, 2008; Williams-Butler et al., 2018). Furthermore, Placement stability has consistently been shown as a critical factor in the developmental trajectories of children in out-of-home care. A large body of research has revealed that children who experience multiple placements are more likely to experience emotional and behavioural difficulties, physical and mental health challenges and academic difficulties than those who do not (Barber et al., 2001; Barber & Delfabbro, 2002; Delfabbro, 2020; Fernandez, 2009; Konijn et al., 2019; Osborn & Delfabbro, 2006; Osborn et al., 2008; Rock et al., 2015; Rubin et al., 2007; Strijker et al., 2008; Stubenbort et al., 2010). Some researchers, therefore, considered placement stability as a precondition for children's development in out-of-home care (Newton et al., 2000; Strijker et al., 2008).

Placement stability has been conceptualised 'as the maintenance of continuity in a child's living situation in terms of the adults he or she lives with' (Pecora et al., 2006). Placement instability reflects placement breakdown, disruption or frequent moves. It encompasses the premature ending of a placement, including moving to another carer (kin or foster), to residential care, unplanned return to parent(s), or the child leaving of their own volition to an unknown place. Within research, placement stability has been measured in a number of ways. There is a lack of definitional agreement regarding what constitutes a 'placement' or 'placement change' and therefore, it is challenging to accurately measure placement stability in care (James et al., 2004; McKenzie & Carter, 2010; Unrau, 2007). Some studies used the number of placement as an indicator of instability (Fernandez, 2009; Newton et al., 2000; Webster et al., 2000) while others measured the length of time taken to establish an enduring placement (James et al., 2004).

Previous research identified a range of factors that relate to placement stability of children in out-of-home care. These include child characteristics (age of entry to care, gender, cultural background), exposure to trauma, child's behavioural and mental health problems, placement type (relative/kinship placement), history of placement changes, placement with siblings, and carer characteristics (psychological wellbeing) and carer experience (satisfaction in caring role) (Barber et al., 2001; Barber & Delfabbro, 2002; Konijn et al., 2019; Osborn et al., 2008; Rock et al., 2015; Webster et al., 2000; Winokur et al., 2014, 2018; Wulczyn & Chen, 2017). As discussed earlier, some of these factors are also known to be associated with developmental outcomes of children in out-of-home care. It is therefore, important for child welfare agencies to identify and address factors that are related to both improved placement stability and better developmental outcomes for children in out-of-home care. The main purpose of this paper is to examine the link between placement stability and developmental outcomes for children in out-of-home care in New South Wales (NSW), Australia. The findings of this study may inform policy and practice to develop strategies to support children at risk of placement instability and poor developmental outcomes.

1.1. Developmental outcomes of children and placement stability

1.1.1. Social and emotional development

Social and emotional development can be adversely affected by frequent placement changes. Children who experience multiple placement changes tend to develop elevated emotional and behavioural difficulties, and mental health problems, which then contribute to placement breakdown (Barber et al., 2001; Barber & Delfabbro, 2002; Fernandez, 2009; Konijn et al., 2019; Stanley et al., 2005; Strijker et al., 2008). Stability minimises child stress, emotional pain and trauma (Pecora et al., 2006) and reduces attachment, emotional and behavioural disorders (Tarren-Sweeney, 2008).

1.1.2. Cognitive development

Exposure to trauma has been shown to have a significant effect on a child's cognitive development with abuse and neglect being related to various development difficulties in terms of learning and language delays (Lum et al., 2017; Viesel et al., 2014; Walsh et al., 2018). Placement instability compounds the negative consequences of maltreatment on children's cognitive development through unstable caregiving situation and attachment disruption (Rubin et al., 2007). Furthermore, evidence suggests that both placement changes and school changes (in some cases due to placement changes) are associated with poor educational outcomes of children who enter out-of-home care (Fernandez et al., 2016; Osborn & Bromfield, 2007) with placement changes found to have a greater effect than school changes (Clemensa et al., 2018).

1.1.3. Physical health outcomes

Although it has been widely recognised that children in out-of-home care have poorer health and wellbeing outcomes compared to the general population, there is limited research that examined the relationship between placement instability and poor physical health development. Research examining health outcomes of children in out-of-home care has focussed typically on the link between exposure to trauma and adverse health outcomes such as, poor brain development (De Bellis, 2001; Hart & Rubia, 2012; Twardosz & Lutzker, 2010), alterations in immune function (Currie & Spatz Widom, 2010; Nicholson et al., 2012; Teicher & Samson, 2016);

increased risk of lifelong health problems (Campbell et al., 2014; Hughes et al., 2017; Norman et al., 2012); and increased risk of adverse health behaviours such as substance use (Ford et al., 2011; Gardner et al., 2019; Rothman et al., 2008). One study, has also shown that placement instability has a negative association with physical development for children in the out-of-home care context (Johnson et al., 2018). Furthermore, a randomized controlled study examining physical development of children who were institutionalized or fostered in Romania concluded that stable placement within family care is essential to ensuring the best outcomes for physical development (Nelson et al., 2007)

1.2. Measuring placement stability

There is a lack of a consistent approach on how to measure placement stability for children in out-of-home care. Longitudinal analysis examining placement stability, in a cohort of first time entries to out-of-home care in California, USA, considered the number of placement changes and found that children with more than one placement change during the first year were more likely to have placement instability in the long term compared to those who changed placement only once in their first year of care (Webster et al., 2000). Other researchers have considered patterns of placement changes including type, number and time in placement (James et al., 2004; Rubin et al., 2007). James et al. (2004) categorised patterns of stability using timing of and duration of the longest placements, which was later adapted by Rubin et al. (2007).

As children's experiences will vary in the number of placements and the length of time in out-of-home care, it is important to consider both aspects when examining placement stability. To examine placement changes, a measure to account for the time in care by indicating how often, on average, placement changes occur for every 10,000 person-days in care was developed (Wulczyn & Chen, 2017). However, this measure does not adequately capture the experience of placement changes from a child's perspective. The current study uses a similar approach to measure placement stability and also takes into account additional aspects of placement stability including; number of placements, duration of placement, timing of the placements, type of placements, and a child's recent history in out-of-home care.

1.3. Policy context in NSW

The main purpose of child protection agencies is to ensure safety, permanency and the wellbeing of children who are at risk of significant harm. Statutory child protection in Australia is the responsibility of State and Territory governments and in the state of NSW; the child protection system is administered by the Department of Communities and Justice (DCJ).

In December 2018, the Office of the Senior Practitioners in DCJ, proposed changes to the out-of-home care accreditation and Quality Assurance Management tool to prioritise placement stability as a focus area for intervention. This focuses not only on accreditation but also on outcomes for children. There was a strong desire for local evidence to support the already established international evidence on the link between placement stability and children's development to inform policy and program development in NSW. The Pathways of Care Longitudinal Study (POCLS) in NSW provides an excellent opportunity to examine this association as it collects data on children's characteristics, their experiences in out-of-home care and developmental outcomes. The POCLS is the first large-scale prospective longitudinal study of children and young people in out-of-home care in Australia.

1.4. Aim of the current study

The main aim of this study is to better understand the relationship between placement stability in out-of-home care and children's development in the context of NSW. Specifically, the study examines how placement stability relates to children's cognitive, physical and socio-emotional developmental outcomes in out-of-home care. Additionally, this paper explores a range of other factors that are associated with a child's developmental outcomes.

2. Method

2.1. The sample

The POCLS follows a cohort of children who entered out-of-home care for the first time in NSW between May 2010 and October 2011 ($n = 4126$). A subset of those children who went on to receive final Children's Court care and protection orders by 30 April 2013 ($n = 2828$) were eligible to participate in the interview component of the study. To date, five waves of data collection have been undertaken at 18–24 month intervals, with the fifth wave completed in December 2020. However, only the first three waves of data were available when this analysis was conducted. The current study used unweighted Wave 1 (June 2011–August 2013) to Wave 3 (October 2014–July 2016) POCLS interview data and the linked DCJ administrative data up to 30 June 2016. There were 1285 children and young people interviewed at Wave 1, 1200 at Wave 2 and 1033 at Wave 3. As the number of children that participated in the interview varied by wave, any study child who participated in any of the first three interviews was included in this analysis. Therefore, the sample consists of 1506 children who have participated in at least one wave of the POCLS data collection.

2.2. Data source

The DCJ administrative data provided information on the child's demographics, child protection history and out-of-home care

placement characteristics. The POCLS interview data consists of responses by the child and carer to questions on a broad range of topics and standardised measures on children's socio-emotional, cognitive and physical health outcomes. Interview data was also used for information on carers' characteristics, carer psychological distress, and carer satisfaction in their caring role.

2.3. Variables/measures

2.3.1. Placement stability

Placement stability is the variable of key interest in the current paper. A measure of placement stability was developed with the aim of capturing different aspects of placement stability including the number of placements, duration of placement, timing of the placements, and the type of placements (Wells et al., 2020). The new measure is defined as 'the number of distinct placement changes per 1,000 person-care days'. In developing the measure, a numbers of factors were considered.

In considering what counts as a placement change, respite placements up to 21 days and other emergency placements <7 days were excluded. The common approach to measure placement stability is to count *the number of distinct placements*, which exclude placements with carers with whom the child already had a placement. This approach has the benefit of addressing an issue common to administrative data, the existence of multiple records for what is actually one single continuous placement. However, it can be argued that this approach can result in undercounting because if a child moves between three homes every month (e.g., movement from carer A to B to C and then to A (ABCA); or movement from carer A to A to B to C (AABC)), this would only be counted as three placements (despite the potential for the out-of-home care experience being unstable). To address this, the new measure considered *the number of distinct placement changes* i.e., the number of placement changes to a different carer. This would be the number of times the child changes between carers (i.e., ABCA would be counted as four placements and AABC would be counted as three placements). This avoids the double counting of administrative data, but still captures the movements between a small numbers of households. This is similar to the approach adopted by Wulczyn and Chen (2017) who examined placement change caused only by changing carer ID.

The duration of time in out-of-home care was also considered. This is an important consideration as a child in out-of-home care for ten years with three placements has different placement stability compared to a child in out-of-home care for a year with three placements. Duration of time in out-of-home care is considered by examining the number of placement changes per 1000 person-care days.

The recent history of a child's out-of-home care experience by counting placements that occurred between interviews (Waves) was included to see if it has an impact on development. To construct this measure a child's experience in three periods was examined: entry into out-of-home care to the Wave 1 interview, Wave 1 interview to the Wave 2 interview, and the Wave 2 interview to Wave 3 interview. These periods are not the same length for each child, with children entering care and being interviewed at different times (on average 18 months apart). Different length periods could create potential measurement problems and this was resolved by the use of a per 1000 care days measure. The measure therefore varies across both individuals and time periods with it being the number of placement changes per 1000 care days between waves for each child. This is the equivalent of the number of placement changes per 2.7 years in care. For example, a child who has two placement changes in 18 months (approx. 548 days) has 3.65 changes per 1000 days.

2.3.2. Covariates

The following covariates were considered in the analysis as they were identified in the literature as common factors that are associated with both placement stability and developmental outcomes for children in out-of-home care. It is important to control for these confounding factors when we examine the link between placement stability and developmental outcomes.

- child's demographics (age at entry to out-of-home care in years, gender, Aboriginal status, culturally and linguistically diverse (CALD) background.
- child protection history (number and types of risk of significant harm (ROSH) reports prior to entry to care)
- placement characteristics (predominant placement type, DCJ Districts)
- carer characteristics (age, cultural background, income, education)
- carer satisfaction in their caring role. A binary satisfaction variable (Y/N) was created for each question related to carer satisfaction including: being able to reach caseworkers when needed; assistance provided by caseworkers; working relationship with other agencies related to the child (early childhood education, counsellors, etc.); adequacy of information about the child; and opportunities to meet other foster or kinship families.
- carer psychological distress was assessed using the Kessler-10 (K-10) (Kessler et al., 2002). The scale includes 10 questions asking carers to rate how often in the last four weeks, a series of statements regarding emotional states applied to them on a 5-point scale ranging from 'all of the time' to 'none of the time'. Scores are then categorised as low, moderate, high or very high where scores of ≥ 25 indicating likely moderate to high psychological distress).
- Social Cohesion and Trust Scale converted to an index that measures the perceived safety and unity of a neighbourhood, with higher values indicating less cohesion.

2.3.3. Developmental measures

The outcome variables were children's development across the domains of socio-emotional, cognitive, and physical health development, measured using a range of standardised measures (DCJ, 2020). The Brief Infant Toddler Social and Emotional Assessment (BITSEA, Briggs-Gowan & Carter, 2006) and Child Behaviour Check List (CBCL, Achenbach & Rescorla, 2000) were administered

to assess children’s socio-emotional development. Children’s cognitive development was measured using verbal and non-verbal ability. To assess verbal ability, the Communication and Symbolic Behaviour Scales Infant and Toddler Checklist (CSBS, [Wetherby & Prizant, 2003](#)), the Macarthur-Bates Communication Development Inventories III (MCDI-III, [Fenson et al., 2000](#)) and the Peabody Picture Vocabulary Test (PPVT, [Dunn & Dunn, 2007](#)) were administered. For non-verbal ability, the Ages and Stages Questionnaire’s (ASQ, [Squires & Bricker, 2009](#)) problem solving scale and the Matrix Reasoning (MR WISC-IV, [Wechsler, 2003](#)) were used. The ASQ scores for gross motor skills and fine motor skills were used to examine physical health development. In the POCLS, most of the measures were completed by the caregivers except for PPVT and WISC-IV, which were interviewer-assisted test administered on children.

The measures, which capture different aspects of a child’s development for a particular age range, are summarised in [Fig. 1](#). For the analyses in this report, an established cut-offs approach defined by the author of each measure was used. This involved harmonising the measures by converting scores to a binary indicator of typical versus atypical development ([Watson et al., 2020](#)). Scores falling in the normal range of development were considered as ‘typical’ development and scores not within the normal range (i.e., borderline, clinical and intensive range) were considered as ‘atypical’ development. Scores in the ‘atypical’ range identify children as at risk of vulnerability i.e. need monitoring, need professional intervention and/or need ongoing intensive professional support ([DJC, 2020](#)).

2.4. Analytic approach

Mixed effect (i.e., random intercept) modelling was used as it allows the examination of factors that were measured while accounting for factors that were not measured but may affect developmental outcomes over time, that is, unobserved heterogeneity ([Rabe-Hesketh & Skrondal, 2008](#)). As each developmental outcome was converted into a binary indicator, mixed effect binary logit models were used.

The final models were developed in two steps. First, the variables that were found significant in the bi-variate analyses involving each explanatory variable and each outcome of interest were included in the full models. Variables which were not significant at $p = .05$ were removed to develop the final models. Specific variables of interest including placement stability and demographic characteristics of children (age of entry, gender, cultural background, placement type, district group) were included in the final models regardless of their statistical significance. To assess the fit of the models, a generalisation of the McKelvey and Zavoina Pseudo R^2 was utilised ([Langer, 2017](#)).

3. Results

We would like to acknowledge that the results include data collected from Aboriginal children and families. Interpretation of the data should consider the factors associated with the over-representation of Aboriginal children in child protection and out-of-home

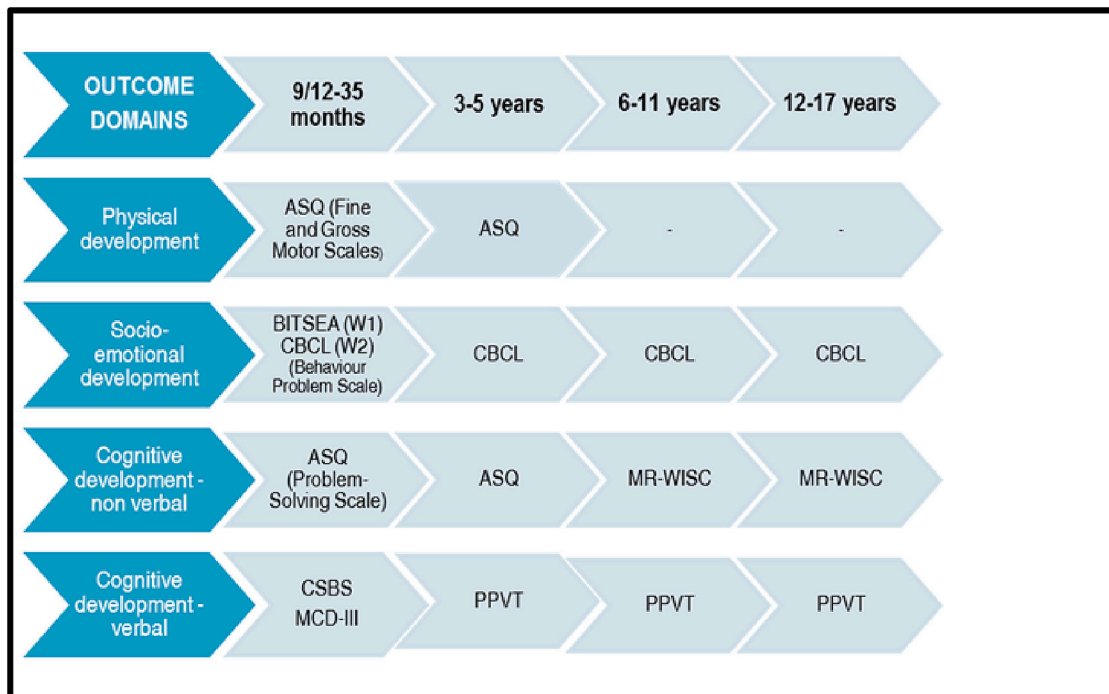


Fig. 1. Standardised measures used across outcome domains for different age groups of children.

care including the legacy of past government policies of forced removal and the intergenerational effects of previous forced separations from family and culture. This erosion of community and familial capacity over time needs to be considered in any reform efforts as it continues to have a profoundly adverse effect on child development. The implications for policy and practice should highlight strengths, develop Aboriginal-led solutions and ensure that better outcomes are achieved for Aboriginal people.

3.1. Descriptive results

In this paper, observations (N) is the number of responses by children across waves and number of children (n) is the number of individual children included in the analysis. Due to the longitudinal nature of the data, the number of observations is always higher than (or equal to) the number of children as it may include response/s by an individual child at more than one wave.

Half (50.3 %) of the observations were from male children, almost 40 % from children who identified as Aboriginal and 14.8 % from children who identified as CALD (Table 1). The mean age of children at entry to out-of-home care was 3.23 years ($SD = 3.80$). The children had extensive child protection histories with an average of 8.5 ROSH reports prior to out-of-home care entry. Around three-quarters of the observations were from children (71.4 %) who were subject to ROSH reports involving physical abuse, followed by 69.1 % for neglect prior to entry to out-of-home care. Over half (57.5 %) of the observations were from children who were placed in foster care and 37.9 % were in relative kinship care.

Table 1
Summary statistics for child characteristics (based on observations).

Child characteristics	N	% ^f	Mean	SD	Range
Demographics	3518				
Gender male ^a		50.3			
Aboriginal ^b		39.6			
CALD ^a		14.8			
Age at entry to out-of-home care (years) ^a			3.23	3.80	0–15
Child protection history	3518				
Number of ROSH reports prior to entry ^a			8.48	8.05	0–48
ROSH reported issues ^a					
Physical abuse		71.4			
Sexual abuse		17.9			
Neglect		69.1			
Psychological		18.1			
Risk of psychological harm		48.8			
Domestic violence		59.6			
Carer mental health		22.7			
Carer emotional state		44.2			
Carer drug and alcohol		66.9			
Carers other issues		24.6			
Children and young people risk behaviours		13.9			
Prenatal		22.1			
Placement characteristics					
Predominant placement type ^b	3256				
Foster care		57.5			
Relative and kinship carer – Aboriginal		8.0			
Relative and kinship carer – non-Aboriginal		29.9			
Residential care		14.4			
Others		3.1			
DCJ District groups at time of interview ^c	3248				
Hunter New England & Central Coast		28.3			
Murrumbidgee, Far West & Western NSW		16.8			
Illawarra Shoalhaven & Southern NSW		9.8			
Mid North Coast & Northern NSW		10.2			
Western Sydney & Nepean Blue Mountain		15.2			
South Eastern, Northern & Sydney		8.6			
South Western Sydney		11.1			
Number of placements per 1000 care days between waves ^d	3156		3.25	1.98	0.77–18.43
Social Cohesion and Trust Scale ^e	3465		8.83	2.90	2–20

^a $n = 1479$.

^b $n = 1340$.

^c $n = 1345$.

^d $n = 1300$.

^e $n = 1477$ individuals.

^f The proportion reflects proportion of Observation/ N rather than the proportion of individuals/ n in the interview cohort at a particular wave.

3.2. Placement stability

Placement stability, as measured by the number of distinct placement changes per 1000 care days (i.e. approximately 2.7 years), is highly positively skewed (Fig. 2). The long tail indicates that a small number of children had a large number of placement changes. The median is 2.8 placements /1000 care days indicating that half of the sample had less than one placement per year in care. The mean number of placement changes/1000 care days was 3.5. This indicates that children who were observed had an average of 1.3 placements per year in care.

3.3. Model results

Table 2 presents the model results for socio-emotional development, verbal cognitive development, non-verbal cognitive development, fine motor skills, and gross motor skills development. The model fits ranged from 11.3 % for non-verbal development (lowest fit) to 44.6 % for socio-emotional development (best fit). A brief summary of the results are discussed below.

3.3.1. Placement stability and children's developmental outcomes

Placement stability, while controlling for other factors in the model, was significantly associated with the probability of a child being in the typical range in socio-emotional, non-verbal cognitive, fine motor skills and gross motor skills development. No association was found with verbal development.

The probability of being in the typical range for all developmental measures (except for verbal development) decreases over time with the increase of placement numbers. If the number of placements/1000 care days between waves increased by one, the probability of being in the typical range decreases by 1.2, 1.7, 1.3 and 2.1 percentage points for socio-emotional, non-verbal, fine motor skills and gross motor skills development respectively.

3.3.2. Covariates associated with children's developmental outcomes

A range of other factors including: age the child entered out-of-home care; gender and Aboriginal status of the child; type of harm experienced; type of placement; and carer characteristics, carer wellbeing and experiences were significantly associated with the probability of a child being in the typical range across different domains of development.

Males were less likely to be in the typical range for non-verbal (on average, a 6 percentage point decrease), fine motor skills (on average, an 11.4 percentage point decrease), and gross motor skills development (on average, a 4.5 percentage point decrease) compared to females. Aboriginal children were also less likely to be in the typical range for non-verbal development compared to non-Aboriginal children (on average, a 4 percentage point decrease). The age of entry to out-of-home care had a significant negative association with socio-emotional and verbal development. For each year increase in the age of entry, the probability of being in the typical range for socio-emotional and verbal development decreases by (on average) 1.6 and 1.3 percentage point respectively.

Compared to children in foster care, children in non-Aboriginal relative/kinship care were more likely to be in the typical range for socio-emotional development and verbal development (on average, a 7.7 and 5.5 percentage point increase respectively); and children in relative/kinship care (Aboriginal) were less likely to be in the typical range for verbal development (on average a 9.3 percentage

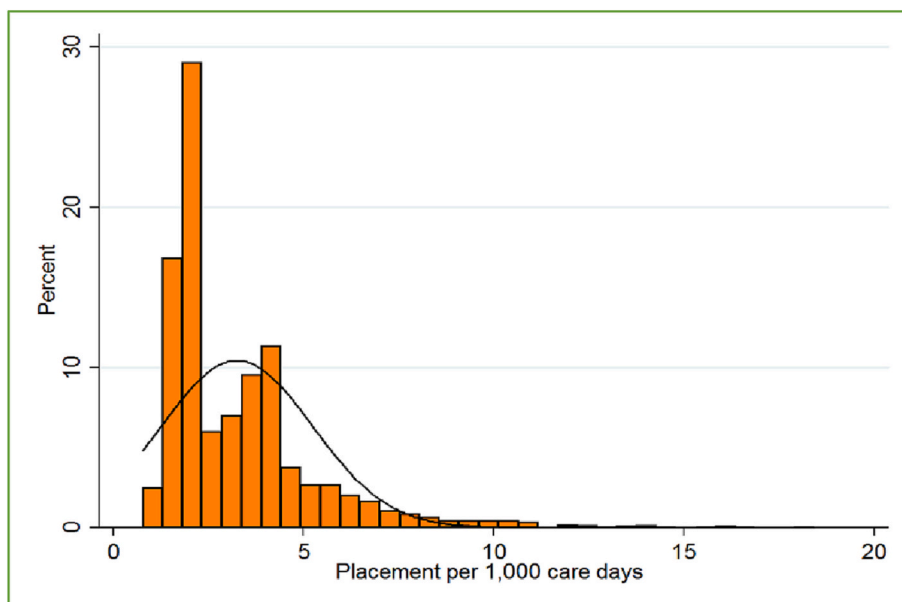


Fig. 2. Placements per 1000 care days ($N = 3156$ observations).

Table 2

Model results (Average Marginal Effects) of the binary logit for socio-emotional, verbal, non-verbal, fine motor skill and gross motor skill development.

Variables	Average Marginal Effects				
	Socio-emotional	Verbal	Non-verbal	Fine motor	Gross motor
Number of placements per 1000 care days between waves	-0.012*	-0.001	-0.017***	-0.013*	-0.021***
Gender - male (Ref female)	-0.025	-0.014	-0.058**	-0.114***	-0.045*
Aboriginal status - Aboriginal (Ref non-Aboriginal)	0.017	-0.03	-0.04*	-0.025	-0.016
CALD status - CALD (Ref non-CALD)	0.043	0.012	0.011	-0.006	-0.013
Age at entry to out-of-home care (years)	-0.016***	-0.013***	0.001	0.008	-0.001
ROSH report type: (Y/N) (Ref No) domestic violence				0.067*	
ROSH report type: (Y/N) (Ref No) Carer drug and alcohol				0.072*	0.103***
ROSH report type: (Y/N) (Ref No) psychological harm	-0.110***				
Predominant placement type - (Ref Foster carer)					
Relative and kinship care - Aboriginal	0.054	-0.093*			
Relative and kinship care - non-Aboriginal	0.077**	0.055**			
Residential care	0.135	0.016			
Others	0.037	-0.029			
Carer finance (Ref < \$40 K)					
40 k to <80 k	0.043			-0.073*	
80 k +	0.033			-0.017	
Carer age (Ref < 40 years)					
41-50 years	0.025			-0.003	
51-60 years	0.064*			-0.024	
≥61 years	0.098**			0.140**	
Carer education (Ref High school)					
University			0.059*		
Other post school qualifications			0.009		
Carer satisfaction with (Ref Not satisfied)					
Assistance from caseworkers	0.03				
Working relationship with other agencies	0.197***				
Having enough information about child	0.126***				
Carer psychological distress (Ref Low)					
Moderate	-0.191***	-0.137			
High	-0.186***	-0.007			
Very high	-0.268***	-0.168*			
Social Cohesion and Trust Scale				-0.012**	-0.008***
DCJ District groups (Ref Hunter New England and Central Coast)					
Murrumbidgee, Far West & Western	-0.012	-0.060*	0.037	0.119**	0.063
Illawarra Shoalhaven & Southern	0.026	-0.007	0.078*	0.122*	0.117**
Mid North Coast & Northern NSW	0.052	-0.004	0.022	0.074	0.071
Western Sydney & Nepean Blue Mountains	-0.012	-0.050	0.001	0.072	0.049
South Eastern, Northern & Sydney	0.043	-0.022	0.13***	0.043	0.094*
South Western Sydney	0.000	-0.065	0.003	0.080	0.056
Time fixed effects - (Ref Wave 1)					
Wave 2	-0.001	0.008	0.037*	0.018	0.062**
Wave 3	-0.093***	0.021	0.067***	0.074*	0.080**
Variance (random intercept)	6.186***	1.712***	2.856***	1.760***	4.196***
Statistics					
Number of individuals	1138	1240	1278	734	775
Number of observations	2387	3009	2962	1444	1615
Chi squared	180.63***	66.16	84.05***	69.35***	74.48***
AIC	2259.92	2798.57	3090.99	1704.74	1458.84
Residual intraclass correlation	0.653	0.517	0.465	0.35	0.56
Pseudo R ² fixed effects	0.446	0.119	0.113	0.155	0.232
Pseudo R ² fixed + random effects	0.652	0.368	0.336	0.28	0.456

Note: The blank cells indicate the variables that were not found significant in the bi-variate analyses and not included in the corresponding model.

*** $p < .001$.

** $p < .01$.

* $p < .05$.

point decrease).

In terms of ROSH reports prior to entry to out-of-home care, reports involving carer drug and alcohol abuse were significantly associated with children’s development in physical health. Children who had ROSH reports involving carer drug and alcohol use had a 7.1 and 10.0 percentage point increase in the probability of being in the typical range for fine motor skills and gross motor skills development respectively compared to children who did not have a report for carer drug and alcohol use. On the other hand, children who had ROSH reports involving psychological harm prior to entry to out-of-home care had an 11.0 percentage point decrease in the probability of being in the typical range for socio-emotional development compared to those who were not reported for psychological harm.

A number of carer characteristics were significantly associated with a child being in the typical range for development. Children who were placed with carers with very high levels of psychological distress were less likely to be in the typical range for socio-emotional and verbal development compared to those placed with carers who reported low levels of distress (on average a 27.0 and 17.0 percentage point decrease respectively). Children who were placed with carers with moderate to high levels of psychological distress were less likely to be in the typical range for socio-emotional development compared to those placed with carers who reported low levels of distress (on average a 19.0 percentage point decrease). Children who had carers with university education were significantly more likely to be in the typical range for non-verbal development compared to children whose carers had completed high school only (on average, a 5.9 percentage point increase). Furthermore, carer's income and age (older age) were significantly associated with the probability of a child being in the typical range in fine motor skills development.

Children placed with carers who reported they were satisfied with having enough information about the child in their care had, on average, a 12.6 percentage point higher probability of being in the typical range for socio emotional development compared to children with carers who were not satisfied. Children placed with carers who reported they were satisfied with the working relationships with other agencies had, on average, a 19.7 percentage point higher probability of being in the typical range compared to children with carers who were not satisfied. Social cohesion was found to have a significant association with gross motor and fine motor skills development. The probability of being developmentally typical in gross motor skills and fine motor skills decreases by 0.7 and 1.1 percentage points for each additional unit of incohesion.

4. Discussion

This study provides the opportunity, using large-scale longitudinal data, to examine the association of placement stability with developmental outcomes of children in out-of-home care. It also includes the development of a new measure that captures different aspects of placement stability and accounts for the length of time spent in out-of-home care.

Consistent with literature, results showed that placement stability, while controlling for a number of other factors, had a significant association with socio-emotional (Barber et al., 2001; Barber & Delfabbro, 2002; Delfabbro, 2020; Fernandez, 2009; Konijn et al., 2019; Osborn et al., 2008; Strijker et al., 2008; Stubenbort et al., 2010; Walsh et al., 2018), cognitive (non-verbal) (Rubin et al., 2007) and physical health (gross motor and fine motor skills) development (Johnson et al., 2018; Nelson et al., 2007) but not with verbal development for children in out-of-home care in NSW. This finding highlights the importance of policy and practice initiatives to improve placement stability in order to achieve positive developmental outcomes for children in out-of-home care and supports DCJ's current initiative to focus on placement stability as an area of intervention to improve outcomes.

Overall, the findings align with previous research on a number of factors associated with child's development. Consistent with previous research (Pritchett et al., 2013; Tarren-Sweeney, 2008), children who entered out-of-home care at an older age were less likely to be developmentally typical for socio-emotional and verbal development compared to children who entered care early. Results also showed that children with pre-entry history of psychological harm were less likely to be in the typical range for socio-emotional development compared to those who were not reported for psychological harm. Together, these findings support previous evidence that children who enter care at an older age tend to be exposed to trauma and abusive environments for a longer period which are associated with poor psychological outcomes (Fernandez, 2009; Osborn & Delfabbro, 2006) and placement instability (Konijn et al., 2019; Rock et al., 2015; Webster et al., 2000). The results highlights the need for ongoing support for children to recover from trauma and support for children entering care at an older age who may be at risk of placement instability and poor socio-emotional wellbeing. It is, therefore, important for casework practice to focus on conducting trauma-informed early assessments and arranging appropriate support and services for these children.

Nevertheless, significant positive associations were found for children reported for carer drug and alcohol use and fine and gross motor skills development. A similar result was also found for reports of domestic violence and fine motor skill development. The positive association of a particular type of ROSH report with development should be interpreted with caution and not be considered as a protective factor (e.g., reported carer drug and alcohol abuse improves fine motor skills). Instead, it may be explained by the lack of other types of ROSH reports that may have a greater negative association on development. Additional research is required to validate these results.

Placement type, in particular, placement with relative/kinship carer had a positive association with socio-emotional development. This finding is consistent with international (Rubin et al., 2008; Winokur et al., 2014, 2018) as well as recent evidence from the POCLS (Cashmore & Taylor, 2020; Delfabbro, 2020). Arguably, this could be due to a selection effect; i.e., children with low levels of emotional and behavioural issues may be placed in relative/ kinship care (Delfabbro, 2020; Konijn et al., 2019; Winokur et al., 2014, 2018). Another explanation could be that relative/kinship carers are more willing and able to cope with emotional and behavioural issues in children as they share a personal interest in the children's wellbeing (Konijn et al., 2019; Rock et al., 2015). Furthermore, children placed with relative/kinship carers may experience stability in placement (Rock et al., 2015), be placed with siblings, and have frequent contact with birth family members, which might enhance their relationships with birth family members and help them to maintain their cultural identity (Cashmore & Taylor, 2020; Delfabbro, 2020; Rubin et al., 2008). All these experiences are critical for children's sense of security, wellbeing and positive development in out-of-home care (Tarren-Sweeney, 2008).

Another noteworthy finding was that compared to foster care, children placed in Aboriginal relative/kinship care were less likely to be in the typical range for verbal development. It may be that Aboriginal households have less resources in some areas (e.g., housing and financial resources) than foster carers to support their children (Delfabbro, 2020). Although this finding suggests that Aboriginal kinship carers may need additional services and support, the current NSW placement priority policy for Aboriginal children should be noted, which prioritises placement with Aboriginal relative/kin wherever appropriate considering children's best interest, long term

outcomes and wellbeing, connection to culture and country.

Carer age (over 60 years) had a significant association with typical socio-emotional and gross motor skill development (Rock et al., 2015). This may be due to older carers having more parenting experience and higher quality parenting skills compared to younger carers. Also high quality parenting skills of carers has been shown to be protective factor for placement instability in care (Carnochan et al., 2013; James et al., 2004; Konijn et al., 2019). Furthermore, children placed with carers who have moderate to high levels of stress were more likely to have poor socio-emotional and verbal development. This result is consistent with literature (Brown et al., 2019; Tarren-Sweeney, 2008). Casework practice should identify carer distress early and monitor it so that appropriate support and services (psychological services, counselling services, finding carer support network etc.) can be arranged if required. If additional support reduces carer stress and improves carer's parenting experience, the extra support may also improve placement stability for the children in their care.

Carer satisfaction was also associated with socio-emotional development. Specifically if carers were satisfied with the working relationship with other agencies and satisfied that they had enough information about the child were more likely to be in the typical range in socio-emotional development. These results reinforce the importance of policies and programs that promote effective relationships between agencies and communication with carers about the child in their care.

Social cohesion was a significant factor for both fine and gross motor skills. Children placed in a neighbourhood with high social cohesion are more likely to be developmentally typical than children not in a trusted neighbourhood. This is consistent with the previous literature (Warren & Edwards, 2017) in that a safe external environment and the ability to play is important for the development of a child's health.

4.1. Limitations

This report provides interesting insights into the development of children in out-of-home care but a number of limitations need to be considered. This study aimed to examine the association between placement stability and developmental outcomes of children in out-of-home care. It was not possible to separate whether development outcome was a cause or consequence of placement stability but the study provides evidence that these factors are associated and important to consider regardless of the causality.

The POCLS did not collect data on children's development at the time of entry to out-of-home care. The first data available is from the Wave 1 interview, on average 18 months after the child's first entry to out-of-home care. This prevents accounting for baseline development in analysing developmental trajectories.

The new placement stability measure in this study considered duration of time in care and the child's recent experience of stability and was found to be robust using different counting rules for placements. Further validation of the measure is required and additional information on quality and timing of placement changes could be considered.

Finally, although a number of factors that may relate to developmental outcomes were controlled for in the analysis, this study did not include some key protective factors such as sibling placements, birth family contact and child disability. Future analysis using POCLS data could consider these factors.

5. Conclusion

This paper provides some evidence that placement stability significantly relates to positive developmental outcomes for children in out-of-home care. This finding from the POCLS data provides evidence to support the current NSW policy initiative to improve children's outcomes in out-of-home care by focussing on placement stability. Furthermore, a range of other factors was found to be associated with children's development and require policy focus. In particular, policies and programs that provide support to carers may contribute to improvement in children's development outcomes. The findings also suggest that placement with relative/kinship carers and experienced and well-supported carers is important for development for children in out-of-home care.

Declaration of competing interest

The authors declare that there may be potential conflict of interest as the authors were employed in the Pathways of Care Longitudinal Study (POCLS) with the Department of Communities and Justice (DCJ) at the time when the work was completed. The Department of Communities and Justice (DCJ) funds the Pathways of Care Longitudinal Study (POCLS).

Data availability

Data will be made available on request.

Acknowledgement

The authors would like to acknowledge Albert Zhou, from the New South Wales Department of Communities and Justice (DCJ), Australia who provided input on the methodology and analysis used in this paper. The Department of Communities and Justice (DCJ) funds the Pathways of Care Longitudinal Study (POCLS).

References

- Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms and profiles*. Burlington, VT: University of Vermont, Department of Psychiatry.
- Barber, J. G., & Delfabbro, P. H. (2002). The plight of disruptive children in out-of-home care. *Children's Services: Social Policy, Research & Practice*, 5(3), 201–212. https://doi.org/10.1207/S15326918CS0503_5
- Barber, J. G., Delfabbro, P. H., & Cooper, L. L. (2001). The predictors of unsuccessful transition to foster care. *Journal of Child Psychology and Psychiatry*, 42(6), 785–790. <https://doi.org/10.1017/S002196300100751X>
- Briggs-Gowan, M. J., & Carter, A. S. (2006). *Brief infant-toddler social and emotional assessment: Examiner's manual*. Yale University and the University of Massachusetts: Brookes Publishing.
- Brown, R., Alderson, H., Kaner, E., McGovern, R., & Lingam, R. (2019). There are carers, and then there are carers who actually care; conceptualizations of care among looked after children and care leavers, social workers and carers. *Child Abuse Neglect*, 92, 219–229. <https://doi.org/10.1016/j.chiabu.2019.03.018>
- Campbell, F. A., Conti, G., Heckman, J. J., Moon, S. H., Pinto, R., Pungello, E. P., & Pan, Y. (2014). Early childhood investments substantially boost adult health. *Science*, 343, 1478–1485.
- Carnochan, S., Moore, M., & Austin, M. J. (2013). Achieving placement stability. *Journal of Evidence-Based Social Work*, 10(3), 235–253.
- Cashmore, J., & Paxman, M. (2006). Predicting after-care outcomes: The importance of 'felt' security. *Child & Family Social Work*, 11(3), 232–241. <https://doi.org/10.1111/j.1365-2206.2006.00430.x>
- Cashmore, J., & Taylor, A. (2020). Children's relationships with their family and carers: First five years in out-of-home care. In *Pathways of care longitudinal study: Outcomes of children and young people in out-of-home care. Research report no. 15*. Sydney: NSW Department of Communities and Justice.
- Clemens, E. V., Klopfenstein, K., Trent, L., Lalonde, T. L., & Tisa, M. (2018). The effects of placement and school stability on academic growth trajectories of students in foster care. *Children and Youth Services Review*, 87, 86–94.
- Currie, J., & Spatz Widom, C. (2010). Long-term consequences of child abuse and neglect on adult well-being. *Child Maltreatment*, 15(2), 111–120.
- De Bellis, M. D. (2001). Developmental traumatology: The psychobiological development of maltreated children and its implications for research, treatment, and policy. *Development and Psychopathology*, 13(3), 539–564.
- Delfabbro, P. (2020). Developmental outcomes of children and young people in relative/kinship care and foster care. In *Pathways of care longitudinal study: Outcomes of children and young people in out-of-home care. Research report no. 16*. Sydney: NSW Department of Communities and Justice.
- Department of Communities and Justice. (2020). Measuring child developmental outcomes: Approaches and methods. In *Pathways of care longitudinal study: Outcomes of children and young people in out-of-home care. Technical report no 9*. Sydney: NSW Department of Communities and Justice.
- Dunn, L. M., & Dunn, D. M. (2007). *Peabody picture vocabulary test fourth edition, manual*. Minneapolis, MN: Pearson Assessments.
- Fenson, L., Pethick, S., Renda, C., Cox, J. L., Dale, P. S., & Reznick, J. S. (2000). Short-form versions of the MacArthur communicative development inventories. *Applied PsychoLinguistics*, 21, 95–116.
- Fernandez, E. (2009). Children's wellbeing in care: Evidence from a longitudinal study of outcomes. *Children & Youth Services Review*, 31(10), 1092–1100. <https://doi.org/10.1016/j.chilyouth.2009.07.010>
- Fernandez, E., Lee, J.-S., Blunden, H., McNamara, P., Kovacs, S., & Cornefert, P.-A. (2016). *No child should grow up like this: Identifying long term outcomes of forgotten australians, child migrants and the stolen generations*. Kensington: University of New South Wales.
- Ford, E., Anda, R., Edwards, V., Perry, G., Zhao, L. C., & Croft, J. (2011). Adverse childhood experiences and smoking status in five states. *Preventive Medicine*, 53(3), 188–193.
- Gardner, M. J., Thomas, H. J., & Erskine, H. E. (2019). The association between five forms of child maltreatment and depressive and anxiety disorders: A systematic review and meta-analysis. *Child Abuse & Neglect*, 96, Article 104082. <https://doi.org/10.1016/j.chiabu.2019.104082>
- Gypen, L., Vanderfaeillie, J., De Maeyer, S., Belenger, L., & Van Hoken, F. (2017). Outcomes of children who grew up in foster care: Systematic review. *Children and Youth Services Review*, 76, 74–83.
- Hart, H., & Rubia, K. (2012). Neuroimaging of child abuse: A critical review. *Frontiers in Human Neuroscience*, 6(52).
- Hegar, R. L., & Rosenthal, J. A. (2011). Foster children placed with or separated from siblings: Outcomes based on a national sample. *Children and Youth Services Review*, 33(7), 1245–1253.
- Hiller, R. M., & St Clair, M. C. (2018). The emotional and behavioural symptom trajectories of children in long-term out-of-home care in an English local authority. *Child Abuse & Neglect*, 81, 106–117. <https://doi.org/10.1016/j.chiabu.2018.04.017>
- Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., Jones, L., & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *The Lancet Public Health*, 2, e356–e366.
- James, S., Landsverk, J., & Slymen, D. J. (2004). Placement movement in out-of-home care: Patterns and predictors. *Children and Youth Services Review*, 26, 185–206.
- Johnson, D. E., Tang, A., Almas, A. N., Degnan, K. A., McLaughlin, K. A., Nelson, C. A., & Drury, S. S. (2018). Caregiving disruptions affect growth and pubertal development in early adolescence in institutionalized and fostered Romanian children: A randomized clinical trial. *Journal of Pediatrics*, 203, 345–353.
- Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S.-L. T., Walters, E. E., & Zaslavsky, A. (2002). Short screening scales to monitor population prevalences and trends in nonspecific psychological distress. *Psychological Medicine*, 32, 959–976.
- Konijn, C., Admiraal, S., Baart, J., van Rooij, F., Stams, G. J., Colonna, C., Lindauer, R., & Assink, M. (2019). Foster care placement instability: A meta-analytic review. *Children and Youth Services Review*, 96, 483–499.
- Langer, W. (2017). *How to Assess the Fit of Multilevel Logit Models With Stata?* Meeting of the German Stata Users Group, Humboldt University at Berlin, Martin-Luther-University Halle-Wittenberg. <https://doi.org/10.13140/RG.2.2.17570.32966>
- Lum, J., Powell, M., & Snow, P. C. (2017). The influence of maltreatment history and out-of-home-care on children's language and social skills. *Child Abuse & Neglect*, 76, 65–74.
- McKenzie, S., & Carter, K. (2010). Measuring whānau: A review of longitudinal studies in New Zealand. *MAI Review*, 3, 1–11.
- Nelson, C. A., Zeanah, C. H., Fox, N. A., Marshall, P. J., Smyke, A. T., & Guthrie, D. (2007). Cognitive recovery in socially deprived young children: The Bucharest early intervention project. *Science*, 318, 1937–1940.
- Newton, R. R., Litrownik, A. J., & Landsverk, J. (2000). Children and youth in foster care: Disentangling the relationship between problem behaviors and number of placements. *Child Abuse & Neglect*, 24(10), 1363–1374. [https://doi.org/10.1016/S0145-2134\(00\)00189-7](https://doi.org/10.1016/S0145-2134(00)00189-7)
- Nicholson, J. M., Lucas, N., Berthelsen, D., & Wake, M. (2012). Socio economic inequality profiles in physical and developmental health from 0–7 years: Australian national study. *Journal of Epidemiology and Community Health*, 66(1), 81–87.
- Norman, R. E., Byambaa, M., De, R., Butchart, A., Scott, J., & Vos, T. (2012). The long-term health consequences of child physical abuse, emotional abuse, and neglect: A systematic review and meta-analysis. *PLoS Medicine*, 9(11), Article e1001349, 10.1371.
- Osborn, A., & Bromfield, L. M. (2007). *Outcomes for children and young people in care. National child protection clearinghouse research brief no. 3*. Melbourne: Australian Institute of Family Studies.
- Osborn, A., & Delfabbro, P. H. (2006). Research article 4: An analysis of the social background and placement history of children with multiple and complex needs in Australian out-of-home care. *Communities, Children and Families Australia*, 1(1), 33–42.
- Osborn, A., Delfabbro, P. H., & Barber, J. G. (2008). The psychosocial functioning and family background of children experiencing significant placement instability in Australian out-of-home care. *Children and Youth Services Review*, 30(8), 847–860. <https://doi.org/10.1016/j.chilyouth.2007.12.012>
- Pecora, P. J., Kessler, R. C., O'Brien, K., White, C. R., Williams, J., Hiripi, E., & Herrick, M. A. (2006). Educational and employment outcomes of adults formerly placed in foster care: Results from the northwest foster care alumni study. *Children and Youth Services Review*, 28(12), 1459–1481.
- Pritchett, R., Gillberg, C., & Minnis, H. (2013). What do child characteristics contribute to outcomes from care: A PRISMA review. *Children and Youth Services Review*, 35(9), 1333–1341. <https://doi.org/10.1016/j.chilyouth.2013.05.001>
- Rabe-Hesketh, S., & Skrondal, A. (2008). *Multilevel and longitudinal modeling using a*. College Station, Tex: Stata Press Publication.

- Rock, S., Michelson, D., Thomson, S., & Day, C. (2015). Understanding foster placement instability for looked after children: A systematic review and narrative synthesis of quantitative and qualitative evidence. *British Journal of Social Work, 45*, 177–203. <https://doi.org/10.1093/bjsw/bct084>
- Rothman, E. F., Edwards, E. M., Heeren, T., & Hingson, R. W. (2008). Adverse childhood experiences predict earlier age of drinking onset: Results from a representative US sample of current or former drinkers. *Pediatrics, 122*(2), e298–e304.
- Rubin, D. M., Downes, K. J., O'Reilly, A. L., Mekonnen, R., Luan, X., & Localio, R. (2008). Impact of kinship care on behavioral well-being for children in out-of-home care. *Archives of Pediatrics & Adolescent Medicine, 162*(6), 550–556. <https://doi.org/10.1001/archpedi.162.6.550>
- Rubin, D. M., O'Reilly, A. L., Luan, X., & Localio, A. R. (2007). The impact of placement stability on behavioral well-being for children in foster care. *Pediatrics, 119*(2), 336–344. <https://doi.org/10.1542/peds.2006-1995>
- Squires, J., & Bricker, D. (2009). *Ages & stages questionnaires, third edition (ASQ-3)*. Baltimore, MD: Brookes Publishing.
- Stanley, N., Riordan, D., & Alaszewski, H. (2005). The mental health of looked-after children: Matching response to need. *Health and Social Care in the Community, 13*, 239–248.
- Strijker, J., Knotth, E. J., & Knot-Dickscheit, J. (2008). Placement history of foster children: A study of placement history and outcomes in long-term family foster care. *Child Welfare, 87*(5), 107–124.
- Stubenbort, K., Cohen, M. M., & Trybalski, V. (2010). The effectiveness of an attachment-focused treatment model in a therapeutic preschool for abused children. *Clinical Social Work, 38*, 51–60.
- Tarren-Sweeney, M. (2008). Retrospective and concurrent predictors of the mental health of children in care. *Journal Children Youth Services Review, 30*(1), 1–25.
- Tarren-Sweeney, M. (2016). The developmental case for adopting children from care. *Clinical Child Psychology and Psychiatry, 21*, 497–505. <https://doi.org/10.1177/1359104516670277>
- Teicher, M. H., & Samson, J. A. (2016). Annual research review: Enduring neurobiological effects of childhood abuse and neglect. *Journal of Child Psychology and Psychiatry, 57*, 241–266. <https://doi.org/10.1111/jcpp.12507>
- Twardosz, S., & Lutzker, J. R. (2010). Child maltreatment and the developing brain: A review of neuroscience perspectives. *Aggression and Violent Behavior, 15*(1), 59–68.
- Unrau, Y. A. (2007). Research on placement moves: Seeking the perspective of foster children. *Children & Youth Services Review, 29*(1), 122–137. <https://doi.org/10.1016/j.childyouth.2006.08.003>
- Viezel, K. D., Freer, B. D., Lowell, A., & Castillo, J. A. (2014). Cognitive abilities of maltreated children. *Psychology in the Schools, 52*.
- Walsb, P., McHugh, M., Blunden, H., & Katz, I. (2018). Literature review: Factors influencing the outcomes of children and young people in out-of-home care. In *Pathways of care longitudinal study: Outcomes of children and young people in out-of-home care. Research report no. 6*. Sydney: NSW Department of Family and Community Services.
- Warren, D., & Edwards, B. (2017). *Context of disadvantage. Occasional paper no. 53m*. Commonwealth of Australia (Department of Social Services).
- Watson, J., Zhou, A., Hopkins, J., Paxman, M., Burke, S., & Butler, M. (2020). Measuring child developmental outcomes: Approaches and methods. In *Pathways of care longitudinal study: Outcomes of children and young people in out-of-home care, technical report no. 9*. Sydney: NSW Department of Communities and Justice.
- Webster, D., Barth, R. P., & Needell, B. (2000). Placement stability for children in out-of-home care: A longitudinal analysis. *Child Welfare, 79*(5), 614–632.
- Wechsler, D. (2003). *WISC-IV technical and interpretive manual*. San Antonio, TX: Psychological Corporation. <https://images.pearsonclinical.com/images/pdf/wisciv/WISCIVTechReport2.pdf>.
- Wells, R., Asif, N., Breen, C., & Zhou, A. (2020). Influence of placement stability on developmental outcomes of children and young people in out-of-home-care. In *Pathways of care longitudinal study: Outcomes of children and young people in out-of-home care. Research report no. 21*. Sydney: NSW Department of Communities and Justice.
- Wetherby, A. M., & Prizant, B. M. (2003). *CSBS-DP Infant-Toddler Checklist and Easy-Score User's Guide*. Baltimore, MD: Paul H Brookes Publishing.
- Williams-Butler, A., Ryan, J. P., McLoyd, V. C., Schulenberg, J. E., & Davis-Kean, P. E. (2018). Relational permanence and psychological well-being among African American adolescents in foster care. *Journal of Child and Family Studies, 27*(10), 3277–3287. <https://doi.org/10.1007/s10826-018-1155-8>
- Winokur, M., Holtan, A., & Batchelder, K. E. (2014). Kinship care for the safety, permanency, and well-being of children removed from the home for maltreatment. *Cochrane Database of Systematic Reviews*, (1), Article CD006546.
- Winokur, M., Holtan, A., & Batchelder, K. E. (2018). Systematic review of kinship care effects on safety, permanency, and well-being outcomes. *Research on Social Work Practice, 28*(1), 19–32.
- Wulczyn, F., & Chen, L. (2017). Placement changes among children and young people in out-of-home care. In *Pathways of care longitudinal study: Outcomes of children and young people in out-of-home care. Research report no. 8*. Sydney: NSW Department of Family and Community Services.