NSW GOVERNMENT

21

Research report

Pathways of Care Longitudinal Study: Outcomes of Children and Young People in Out-of-Home Care

Influence of Placement Stability on Developmental Outcomes of Children and Young People in Out-of-Home Care

Pathways of Care Longitudinal Study: Outcomes of Children and Young People in Out-of-Home Care in NSW

Research Report No. 21

Influence of Placement Stability on Developmental Outcomes of Children and Young People in Out-of-Home Care

New South Wales Department of Communities and Justice (DCJ)
Insights Analysis and Research
320 Liverpool Road
Ashfield NSW 2131

Phone + 61 2 9716 2222

June 2020

ISBN: 978-6485157-3-9

Recommended citation

Wells, R. Asif, N., Breen, C. and Zhou, A. (2020). Influence of placement stability on developmental outcomes of children and young people in out-of-home-care. Pathways of Care Longitudinal Study: Outcomes of Children and Young People in Out-of-Home Care. Research Report Number 21. Sydney. NSW Department of Communities and Justice.

Disclaimer

DCJ funds and leads the Pathways of Care Longitudinal Study. The analyses reported in this publication are those of the authors and should not be attributed to any data custodians. The authors are grateful for the reviewers' comments.

About the information in this report

All the analyses presented in this report are based Wave 1-3 unweighted data collected in face-to-face interviews with children, young people and caregivers; and DCJ administrative dataa.

Pathways of Care Longitudinal Study Clearinghouse

All study publications including research reports, technical reports and briefs can be found on the study webpage www.facs.nsw.gov.au/resources/research/pathways-of-care

Study design by NSW Department of Communities and Justice Insights, Analysis and Research; Australian Institute of Family Studies; Sax Institute, Professor Judy Cashmore, University of Sydney; Professor Paul Delfabbro, University of Adelaide; Professor Ilan Katz, University of NSW; Dr Fred Wulczyn, Chapin Hall Center for Children University of Chicago.

Study data collection by I-view Social Research.

Advisors Expert advice and support has been provided by the CREATE Foundation; Aboriginal Child, Family and Community Care State Secretariat (AbSec); My Forever Family NSW; and program areas.

Acknowledgements We wish to extend our thanks to all the children, young people and caregivers who participated in interviews; childcare teachers, school teachers and caseworkers who participated in on-line survey interviews; and the data custodians in the relevant NSW and Commonwealth government departments. Ms Sammy Verma grew up in care and played a key role in the production of the study video for children and stakeholders. Ms Billy Black also grew up in care and designed the study artwork. Ms Sammy Verma and Mr Samuel Eyeson-Annan both did the voiceover for the audio computer-assisted self-interview (ACASI) for the child/young person interview.

Ethics approval by The University of NSW Human Research Ethics Committee (approval number HC10335 & HC16542); Aboriginal Health and Medical Research Council of NSW Ethics Committee (approval number 766/10); NSW Department of Education and Communities State Education Research Approval Process (SERAP, approval number 2012250); NSW Population & Health Services Research Ethics Committee (Ref: HREC/14/CIPHS/74 Cancer Institute NSW: 2014/12/570).

Contents

List of Figures

List of Tables

Preface

The Pathways of Care Longitudinal Study (POCLS) is funded and managed by the New South Wales Department of Communities and Justice (DCJ). It is the first large-scale prospective longitudinal study of children and young people in out-of-home care (OOHC) in Australia. Information on safety, permanency and wellbeing is being collected from various sources. The child developmental domains of interest are physical health, socio-emotional wellbeing and cognitive/learning ability.

The overall aim of this study is to collect detailed information about the life course development of children who enter OOHC for the first time and the factors that influence their development. The POCLS objectives are to:

- Describe the characteristics, child protection history, development and wellbeing of children and young people at the time they enter OOHC for the first time.
- Describe the services, interventions and pathways for children and young people in OOHC, post restoration, post adoption and on leaving care at 18 years.
- Describe children's and young people's experiences while growing up in OOHC, post restoration, post adoption and on leaving care at 18 years.
- Understand the factors that influence the outcomes for children and young people who grow up in OOHC, are restored home, are adopted or leave care at 18 years.
- Inform policy and practice to strengthen the OOHC service system in NSW to improve the outcomes for children and young people in OOHC.

The POCLS is the first study to link data on children's child protection backgrounds, OOHC placements, health, education and offending held by multiple government agencies; and match it to first-hand accounts from children, caregivers, caseworkers and teachers. The POCLS database will allow researchers to track children's trajectories and experiences from birth.

The population cohort is a census of all children and young people who entered OOHC over an 18 month period for the first time in NSW between May 2010 and October 2011 (n=4,126). A subset of those children and young people who went on to receive final Children's Court care and protection orders by April 2013 (2,828) were eligible to participate in the study. For more information about the study please visit the study webpage www.facs.nsw.gov.au/resources/research/pathways-of-care.

The POCLS acknowledges and honours Aboriginal people as our First Peoples of NSW and is committed to working with the DCJ Aboriginal Outcomes team to ensure that Aboriginal children, young people, families and communities are supported and empowered to improve their life outcomes. The POCLS data asset will be used to

improve how services and supports are designed and delivered in partnership with Aboriginal people and communities.

DCJ recognises the importance of Indigenous Data Sovereignty (IDS) and Indigenous Data Governance (IDG) in the design, collection, analysis, dissemination and management of all data related to Aboriginal Australians. The POCLS is subject to ethics approval, including from the Aboriginal Health & Medical Research Council of NSW. DCJ is currently in the process of scoping the development of IDS and IDG principles that will apply to future Aboriginal data creation, development, stewardship, analysis, dissemination and infrastructure. The POCLS will continue to collaborate with Aboriginal Peoples and will apply the DCJ research governance principles once developed.

1 Executive Summary

This is the first study to examine the influence of placement stability and a range of other factors on developmental outcomes over time for children in NSW using the POCLS data[1]. A measure of placement stability was developed that accounted for length of time in OOHC and statistical models were produced to better understand the impact of placement stability and other factors on developmental outcomes over time.[2]

Placement stability was found to have a significant yet small association with socio-emotional, non-verbal, gross and fine motor skill development over time. A number of other factors were also found to influence these outcomes and these factors need to be considered to improve developmental outcomes for children in OOHC.

1.1 Key findings

- On average, children in the POCLS had 1.3 placements per year in OOHC.
- For children who completed interviews at all three waves,
  - more than half (57.1%) remained[3] in the typical range for socio-emotional development and around 14% remained in the atypical range.
  - about two thirds of children (64%) remained in the typical range for verbal development and only 5% remained in the atypical range.
  - more than half (54.8%) remained in the typical range for non-verbal development and only a small proportion (7.4%) remained in the atypical range.
  - almost half (44%) of children remained in the typical range for fine motor skill development and 10% remained in the atypical range.
  - about two thirds of children (64%) remained in the typical range for gross motor skill development and 5% remained in the atypical range.
- Placement instability, after controlling for a number of factors, had a statistically significant association with socio-emotional, non-verbal, gross and fine motor skill development over time but did not have a significant association with verbal development over time.

[1] DCJ administrative data up to 30 June 2016 and POCLS interview data from Waves 1 – 3 were used. There were 1285 children and young people interviewed at Wave 1, 1200 at Wave 2 and 1033 at Wave 3.

[2] Placement stability was measured by the number of placements per 1,000 care days i.e. approximately 2.7 years.

[3] Remained in this section is across Waves 1, 2 and 3.

In addition to placement instability, a range of other factors were significantly associated with developmental outcomes over time.

- For socio-emotional development over time;
  - children who entered care at an older age, who had ROSH reports for psychological harm or who lived with a carer that had moderate to very high psychological distress were less likely to be in the typical range than children without these characteristics.
  - children placed in non-Aboriginal relative/kinship care or who lived with older carers were more likely to be in the typical range compared to children in foster care or those who lived with younger carers.
  - children who lived with carers that reported to be satisfied with i) their working relationships with other agencies or ii) the amount of information they had about the child in their care, were more likely to be in the typical range compared to children who lived with carers that were not satisfied.
  - compared to Wave 1, children in Wave 3 were less likely to be in the typical range.
- For verbal development over time;
  - children who entered care at an older age were less likely to be in the typical range than younger children
  - children placed in Aboriginal relative/kinship care were less likely and children placed in non-Aboriginal relative/kinship care were more likely to be in the typical range compared to children in foster care.
  - children who lived with a carer that had very high psychological distress were less likely to be in the typical range than children who lived with a carer with low distress.
  - children who were placed in district group[4] Murrumbidgee, Far West and Western were less likely to be in the typical range compared with children placed in Hunter New England and Central Coast districts.
- For non-verbal development over time;
  - children who were male or Aboriginal were less likely to be in the typical range compared to female or non-Aboriginal children.

[4] District group incorporates a number of DCJ Districts. Due to small numbers in some districts, geographic categories have been combined. See Section 4.3.1.

- children who had ROSH reports for carer drug and alcohol abuse were more likely to be in the typical range compared to those without carer drug and alcohol reports.[5]
- children who lived with a carer that had University education were more likely to be in the typical range compared to children who lived with a carer who completed high school only.
- children who were placed in Illawarra Shoalhaven & Southern NSW and South Eastern, Northern & Sydney were more likely to be in the typical range compared to children placed in Hunter New England and Central Coast.
- compared to Wave 1, children were more likely to be in the typical range in Wave 2 and 3.

- For fine motor skill development over time;
  - male children were less likely to be in the typical range compared to females.
  - children who had ROSH reports for carer drug and alcohol abuse or domestic violence were more likely to be in the typical range compared to those without those reports.[5]
  - children who lived with carer that reported a high annual income were less likely to be in the typical range compared to those reporting a low income.
  - Children who lived with an older carer (>61 years) were more likely to be in the typical range compared to children who lived with a younger carer.
  - children living in a socially cohesive neighborhood were more likely to be in the typical range.
  - children placed in Murrumbidgee, Far West and Western NSW, and the Illawarra, Shoalhaven and Southern NSW districts were more likely to be in the typical range compared to children placed in Hunter New England and the Central Coast.
  - compared to Wave 1, children were more likely to be in the typical range in Wave 3.
- For gross motor skill development over time;
  - male children were less likely to be in the typical range compared to females.
  - children who had ROSH reports for carer drug and alcohol abuse were more likely to be in the typical range compared to those without carer drug and alcohol abuse reports.[5]

[5] The positive association between a particular type of ROSH report on development should be interpreted with caution and not be considered as a protective factor (eg. reported carer drug and alcohol abuse improves non-verbal skills). Instead, this may be explained by the absence of other types of ROSH reported issues which may have a greater negative influence on development.

- children living in a socially cohesive neighborhood are more likely to be in the typical range.
- children placed in Illawarra, Shoalhaven and Southern NSW, and South Eastern, Northern and Sydney districts were more likely to be in the typical range compared to children placed in Hunter New England and the Central Coast.
- compared to Wave 1, children were more likely to be in the typical range in Wave 2 and 3.

1.2 Implications of policy and practice

These findings reinforce DCJ's current focus on placement stability as an area for intervention to improve children's development over time. However, this report also highlights a range of other factors including placement type and carer support that influence child development and require policy focus.

2 Introduction

Children who experience abuse and neglect, and who are subsequently placed in OOHC have poorer outcomes 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 OOHC (Walsh et al 2018, Gypen et al 2017).

A recent literature review identified a number of factors that influence developmental outcomes for children in OOHC (Walsh et al., 2018). These include:

- Child characteristics, e.g. age, cultural background (Aboriginality, CALD)
- Birth family characteristics, e.g. age, cultural background (Aboriginality, CALD)
- Child protection history, e.g. type of maltreatment
- Neighbourhood and community characteristics, e.g. geographic location
- Placement characteristics, e.g. type of placement (foster, relative/kinship, residential), stability of placement
- Carer characteristics and experiences, e.g. support, satisfaction with services.

Development in children who are removed from their birth families for child protection purposes can be complicated by adversity such as abuse, trauma and experience of instability of placement in OOHC. Placement stability has consistently emerged as an important cause and consequence of developmental trajectories of children in OOHC. A recent meta-analysis found placement stability to be a persistent factor in child development across geography and time (Konijn et al 2019). Children are more likely to have positive outcomes when their OOHC placement is stable (Carnochan et al 2013).

It is therefore not surprising that child protection and welfare agencies try to improve placement stability in attempting to provide better developmental outcomes for the children in OOHC.

In December 2018, the Performance and Continuous Improvement (PCI) team in the Office of the Senior Practitioner (OSP) at the Department of Community and Justice in NSW, proposed changes to the OOHC accreditation and Quality Assurance Management tool to prioritise placement stability as a focus area for intervention this focussing not only on accreditation but also outcomes for children.

PCI is accountable for ensuring that Districts provide excellent case management to children in OOHC. They also assist services in the Districts to remain accredited with the Office of the Children's Guardian so that they can continue to provide OOHC services.

This analysis is a result of a collaborative project between PCI and FACS Insights, Analysis and Research (FACSIAR) to better understand the impact of placement stability on outcomes for children in OOHC. The broad purpose of this report is to respond to this strategic and policy initiative by examining the factors that influence developmental outcomes of children in the POCLS with a particular focus on placement stability.

2.1 Developmental outcomes

This section presents a brief review of the literature on determinants of childhood development in the context of children who have experienced trauma and entered OOHC. It also summarises the existing literature on the causes and consequences of placement instability.

This research focuses on three main domains of childhood development, namely socio-emotional, cognitive and physical development. Each of these domains of development is examined using a number of different outcome measures (see section 3.2).

2.1.1 Social and emotional development

Exposure to traumatic experiences early in life may have adverse effects on brain development including emotion regulation capacities and ability to cope with stress (Perry et al. 2002). Children and young people who have been in OOHC have more emotional and behavioural problems compared to the general population and that placement stability predicts improved outcomes (Gypen 2017).

Social and emotional development can be adversely impacted by frequent placement moves (Stubenbort, Cohen and Trybalski 2010). Research that has examined the relationship between placement instability and children's psychosocial problems reveals that children who experience multiple changes in placement tend to develop elevated emotional and behavioural problems which then contribute to placement breakdown (Stanley, Riordan, & Alaszewski, 2005; McCauley & Trew, 2000). Stability minimises child stress, emotional pain and trauma (Pecora, 2010) and reduces attachment, emotional and behavioural disorders (McHugh 2013).

Rubin et al. (2007) found that after accounting for baseline attributes, stability remained an important predictor of well-being. Children with unstable placements were more likely to have behaviour problems than children who achieved early stability across every level of risk for instability. Children experienced placement instability regardless of their baseline problems, and this instability had a significant impact on their behavioural well-being (Rubin 2007). This suggests that stability is an important factor regardless of baseline attributes but also can be associated with feedback affects, that is, placement stability impacts behaviour which may impact further placement changes.

2.1.2 Cognitive development

Cognitive development of children and young people in OOHC has mainly been investigated using academic tests or educational attainment instead of standardised

cognitive measures. Evidence suggests that children who enter OOHC typically lag behind academically and their academic growth tends to improve when they are in family-like placements. Furthermore, school changes and placement changes both have negative impact on their academic growth with placement changes having a greater effect than school changes (Clemens 2018). As children and young people who have experienced OOHC are more likely to have experienced disrupted schooling and potential implications for academic attainment (Pecora et al., 2006), it may be more meaningful to focus on measures of cognitive functioning, including memory, attention, planning, and problem-solving (Fry et al 2017). The cognitive development measures used in the POCLS include these areas.

A systematic review of cognitive functioning among children and young people who have experienced homelessness, foster care, or poverty found that overall they demonstrate poorer performance on cognitive tasks than children and young people who have not had these experiences, and show below average performance compared to published norms (Fry et al 2017). There is mixed evidence regarding the association between experience in OOHC and cognition for children and young people. In a study with a small sample, Kira (2012) found a negative association between foster care and working memory. Berger et al. (2009) found no relationship between having experienced OOHC and general cognitive functioning.

A recent literature review of research into children in OOHC by Walsh et al. (2018) has reported that trauma has been shown in the previous literature to have a significant effect on a child's cognitive development with neglect being related to various development difficulties in terms of cognitive and language delays. Arguably one of the most famous studies on the effects of institutionalised care and cognitive development is that based on Romanian orphanages. In this study, children were randomly assigned to continued institutional care or placement in foster care. Their cognitive development was tracked. Those who remained in institutional care had markedly lower cognitive development than those in foster care. The improvements were most marked for the youngest children placed in foster care (Nelson 2007).

2.1.3 Physical health outcomes

Early life experiences influence brain architecture and physical development. It has been widely recognised that early experiences of trauma and abuse can significantly disrupt brain development and influence the ability to learn and develop skills such as gross and fine motor skills. This can be attributed to the fact that the part of brain that is involved in the stress and trauma response is also responsible for mediating motor behaviour (Committee on Early childhood for children in Foster care, 2000). Early adversity has also been linked to physiological disruptions such as alterations in immune function (Currie and Spatz-Widom, 2010; Nicholson et al., 2012); increased risk of lifelong health problems (Campbell et al., 2014; Hughes et al., 2017); and to adverse health behaviours such as substance use in adolescence and adulthood (Rothman et al., 2008; Ford et al.,

2011). These children are at increased risk of lifelong physical illness and mental health problems (Tseng et al. 2019).

Studies have shown placement instability has a negative impact on physical development for children in the OOHC context (Johnson 2018). A recent randomised controlled study examining physical development of children who were institutionalised or fostered in Romania concluded that stable placement within family care is essential to ensuring the best outcomes for physical development (Nelson 2013). They found more disruptions in caregiving between 30 months and 12 years led to greater decreases in growth rates of height in a foster care group and in weight in the foster care group and an institutionalized group across age.

It has been argued that placement stability helps ensure that educational, physical, and mental health needs will be assessed and addressed in a timely and consistent manner (McHugh 2013).

2.2 Placement Stability

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 2010). It is also suggested that 'family stability is best viewed as a process of caregiving practices that can greatly facilitate healthy child development' (Harden 2004). 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.

A number of studies have examined both the predictors and outcomes of placement stability. A recent systematic review and narrative synthesis reported that the factors most strongly associated with placement instability included older age of children, externalising behaviours, longer total time in care, residential care as first placement setting, separation from siblings, foster care versus kinship care, and experience of multiple social workers. Key protective factors included placements with siblings, placement with older carers, more experienced carers with strong parenting skills, and placements where carers provide academic support and opportunities for children to develop intellectually (Rock 2015). Consistent with these findings, a recent meta-analytic review of 42 studies found that child behavioural problems, non-kinship care and quality of parenting had a moderate effect on placement instability (Konijn et al 2019). Smaller effects were found for age of children, placement with siblings and maltreatment history. Although the effects were modest they were generalisable across location and time (Konijn et al 2019).

A recent literature review of the outcomes of children in OOHC has identified placement stability as both a causal factor and consequence of development for children in OOHC

(Walsh et al, 2018). Children have positive outcomes when their OOHC placement is stable (Carnochan et al 2013). Consistent with this, results from an eight year longitudinal study of 59 children in OOHC in Australia showed that children who experience longer placements have better academic progress and overall adjustment (Fernandez 2009).

Placement stability is a complex phenomenon and its measurement is also complex. There are numerous factors that impact stability including the:

- child and family of origin characteristics including maltreatment history,
- placement type and quality including carer characteristics, and
- welfare system and services (Carnochan et al 2013, Walsh et al 2018).

The following section provides a targeted review of literature focused on the factors that influence placement stability and a brief discussion on the measurement issues related to placement stability. For the purposes of this research placement stability is conceptualised as the number of times a child is placed into a new household. Further discussion on how this measure is operationalised is found later in this document in section 4.2.5.

2.2.1 Child characteristics

Several studies have considered individual child characteristics including age, gender, ethnicity and behavioural problems while examining stability. Findings for age and placement stability are consistent. Research suggests that children who are older on entering OOHC are at greater risk for placement instability than younger children (Webster et al., 2000). A meta-analysis concluded that children who come into care earlier have more positive placement outcomes than those coming into care at an older age (Pritchett et al., 2013). Recent analysis of the POCLS data looking at factors associated with placement changes also found consistent results with children who were older at the time of entering care having a greater number of placement changes (Wulczyn 2017).

There is mixed evidence regarding gender and placement stability (Aaron 2010). While some studies have found no gender effect (James, Landsverk, and Slymen, 2004; Wulczyn, Kogan, and Harden, 2003), some have found that females are at greater risk (UC Davis Extension Center for Human Services, 2008, Smith et al 2001, Huebner 2007) while others have suggested that males are at greater risk (Webster et al., 2000, Smith et al 2009).

Findings on ethnicity and placement stability are also equivocal (Aaron 2010). Research from the US examining ethnicity and placement stability reported that white adolescents have increased levels of instability (Pardeck, 1984; Webster et al., 2000). Evidence from Australian studies generally suggests that Aboriginal and non-Aboriginal children do not differ in terms of placement stability (Barber & Delfabbro, 2004; Osborn et al. 2008;

Delfabbro et al. 2007) with the exception of one study which found that Aboriginal children in OOHC experienced more placements than non-Aboriginal children (McDowell 2013). Analysis to date from the POCLS has found no difference in the number of placements by Aboriginality (Wulzcyn et al 2017).

Children have an increased risk of placement changes when there is a health or mental health diagnosis or delinquency (Eggertsen, 2008). Numerous studies have found child behaviour problems, particularly externalising problems, are associated with placement changes (Konijn 2019, Rock 2015).

2.2.2 Family characteristics and maltreatment history

A systematic review of research examining correlates of placement moves and breakdown concluded that there is no strong evidence for an association between placement instability and any single birth parent factor (Rock et al 2015). Research on types of abuse have found that children who are removed due to sexual abuse and physical abuse in their family are at a greater risk for placement change than children who enter due to neglect (Webster et al., 2000). Another study has found that children whose birth parents had mental health problems took longer to stabilise, possibly because they entered care with more problems (Rubin et al., 2007).

There is also inconsistent evidence for an association between birth parent contact and placement instability (Rock 2015).

2.2.3 Characteristics of Placement

A substantial body of research has identified a range of placement characteristics that may contribute to multiple placement moves or stability, including carer characteristics, placement type and system factors (Carnochan 2013).

Carer characteristics

There is evidence that placement stability is associated with older and more experienced carers (Rock et al 2015). Children placed with carers who are emotionally involved (Walsh and Walsh, 1990) and appropriately supported, prepared and trained, experience greater stability than children placed with carers who are not (Redding, Fried, & Britner, 2000). Effective matching of children to carers in terms of child temperament, carer temperament, and carer expectations has also been linked to stability (Redding et al., 2000). Recent analysis of the POCLS data showed that caregiver stress and whether the caregiver was satisfied with help from caseworker and had positive parenting experiences, were associated with fewer placement changes (Wulczyn 2017).

Kin versus non-kin placements

Kinship care can be defined as any living arrangement in which a child is placed in the care of an adult relative (other than their parents of origin) or another non-blood relative ‘kin’ relatives including: godparents, family friends, or anyone else with a strong

emotional tie with the child (Geen, 2004). This is in contrast with foster care, which is the placement of children in a home with unrelated carers.

A systematic review found that children in kinship placements had less placement disruption than children in non-kinship placements (Winokur, Holtan, and Batchelder 2014). Consistent with this, a scoping review found that children in kinship care experienced greater placement stability in comparison with children living with foster families (Bell and Romano 2017). Other research also provide evidence for this effect regardless of the age of the child (Webster 2000). Recent analysis of the POCLS data showed that children in foster care had more placement changes than those in kinship care (Wulczyn 2017).

System factors

System factors have also been found to be associated with placement stability. A multivariate analysis found that children who had more than one placement change during their first year of care were more likely to experience placement instability than if they did not experience changes or changed placement only once during their first year in care (Webster 2000). Recent analysis of the POCLS data supports this evidence showing that children with a history of placement changes were more likely have additional placement changes (Wulczyn 2017).

Caseworker turnover has also been linked to placement instability (Pardeck, 1984; Ryan, Garnier, Zyphur, & Zhai, 2006). Lack of supervision and support, high caseloads, administrative burdens, and low levels of training have been found to be associated with high caseworker turnover. Factors promoting placement stability include the provision of subsidies for guardianship and adoption placements[6] (Berry & Barth, 1990; Testa, 2002) and the use of caseworkers with graduate-level training (Ryan et al., 2006).

2.2.4 Measuring placement stability

Placement stability is a relatively easy concept to understand but more difficult to measure. Placement stability can be measured in a number of ways. There is, however, a lack of definitional agreement regarding what constitutes a ‘placement’ or ‘placement change’ and therefore it is challenging to accurately track movement through care (James et al 2004). Although difficult to summarise, consideration of placement stability

[6] DCJ has policies regarding placement of Aboriginal and Torres Strait Islander children. See https://caseworkpractice.intranet.facs.nsw.gov.au/mandates/children-in-care/placing-a-child-in-oohc-and-supporting-them-through-their-transition#section-366260. DCJ use the Aboriginal and Torres Strait Islander Placement Principle (ATSICPP). Adoption for Aboriginal children is not a preferred option.

should involve more than just placement counts but also patterns in the number and timing of placement changes and type of placement.

The first longitudinal analysis examining placement stability in a cohort of first time entries to OOHC 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 2000). Secondary analysis was conducted examining those who changed three or more times as a more conservative estimate of placement stability to reflect routine practice where children may experience an emergency placement, and a second placement before being placed into a longer term placement. The study found that placement type predicted future placement moves (Webster 2000).

Other researchers have considered patterns of placement changes considering type, number and time in placement (James et al., 2004, Rubin 2007). James et al. (2004) categorised patterns of stability using timing of and duration of the longest placements. Stability was categorised as early (permanent placement within 45 days), later (stability after 45 days – 9 months), variable (at least one placement lasting 9 months but subsequent placement moves) or unstable pattern (multiple placement with no placement longer than 9 months). Results revealed that children with high externalising problems and problem behaviours were more likely to fall into the variable or unstable groups compared to those who were not in the problem range for socio-emotional development (James et al. 2004).

Highlighting the need to control for baseline characteristics, Rubin et al. (2007) adapted the approach used by James to examine the contribution of baseline problems at entry to OOHC on placement stability and behavioural outcomes. The study concluded that children's experience of placement instability was unrelated to their baseline problems and placement instability had a significant impact on behavioural well-being (Rubin et al., 2007).

There is a well-established literature to suggest that placement type impacts stability with kinship placements being more stable (Winokur 2014, Webster 2000). It may be argued that these differences may be limited by the problem of selection bias as kinship carers may have a greater control than foster carers over the decision of assuming the responsibility of a child into care. There has been research comparing permanency outcomes in kinship and non-kinship care using propensity score matching to account for selection bias which showed that children in non-kinship care are at a higher risk of initial placement instability compared to those in kinship care. However, the study found no difference in the rates of instability within a year of entry (Koh 2008). This highlights the need to both control for baseline differences and also examine placement stability over time.

Children's experiences will vary in the number of placements and the length of time in OOHC. It is important to consider both aspects when examining placement stability. In a recent examination of placement changes in the POCLS, a measure was developed to account for the time in care by indicating how often on average placement changes occur for every 10,000 person-days in care (Wulczyn and Chen 2017). The current study uses a similar approach to measure placement stability in order to account for time in care.

To more accurately examine placement pathways, this study made an attempt to capture multiple aspects of placement experience in measuring placement stability including number of changes, total length of time in care, sequences of placements and length of time in care per care episode.

3 Aims

The main aim of this study is to better understand the relationship between placement stability in OOHC and children's development. This study focusses on socio-emotional, cognitive and physical development. Specifically the study aims to address:

- How does placement stability, and a range of other factors, influence children's cognitive, physical and socio-emotional developmental outcomes in OOHC over time?

To answer the above research questions, this report also examines several different measures of placement stability and how many placements children have over time.

4 Methods

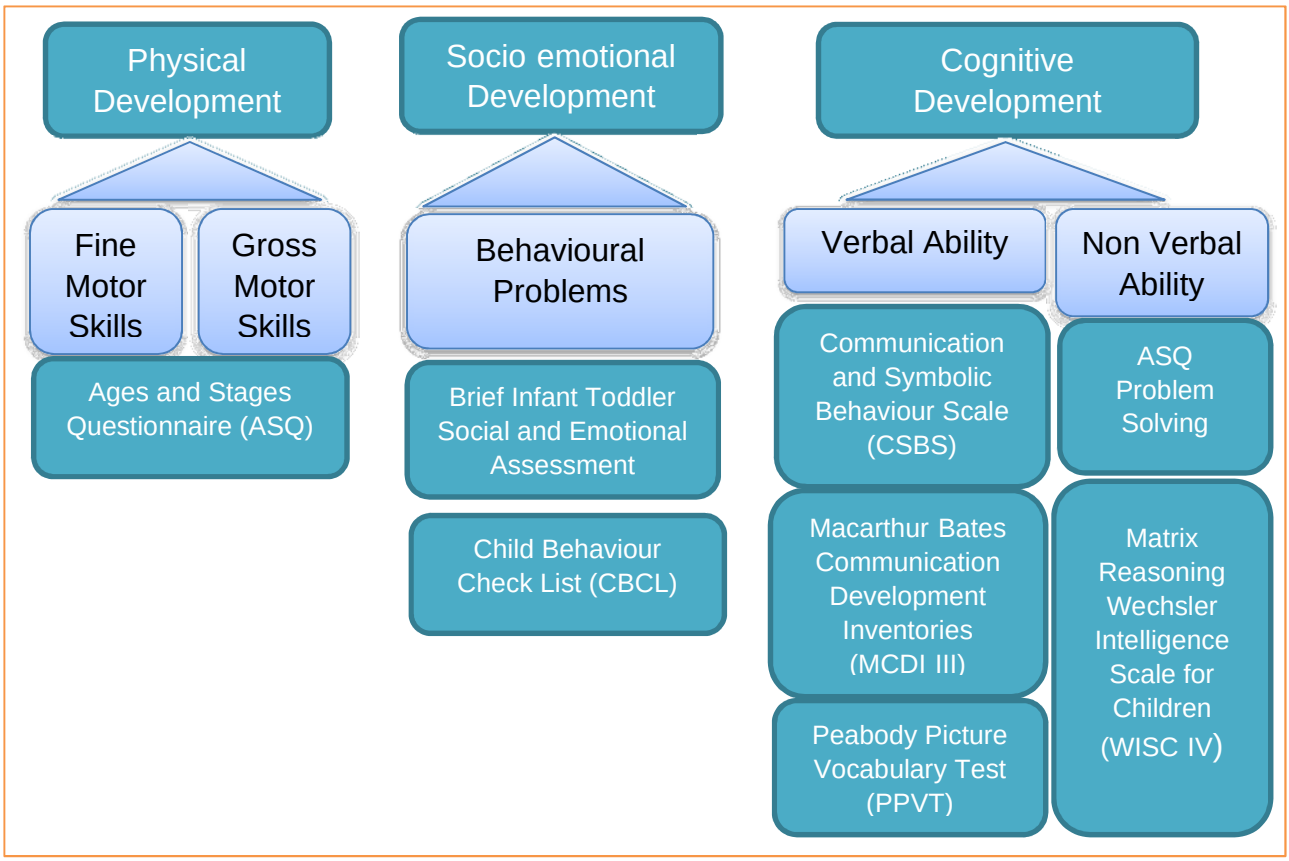
4.1 Data sources

This report used DCJ administrative data and data from the first three waves of POCLS interviews. The DCJ administrative data include historical data on engagement with child protection services [e.g. number and type of Risk of Significant Harm (ROSH) reports] and data on OOHC (e.g. placements including timing, type, carer and duration of care) up to 30 June 2016. The interview data consists of responses by the child (aged 7 years and older) and carer to a range of questions and a number of standardised psychometric measures. Several psychometric measures were used to construct the variables for the current analysis (see section 4.2 for more details).

4.2 Outcome Measures

In the POCLS, a range of measures were used to capture development across the three distinct domains of socio-emotional, cognitive and physical development. These measures are summarised in Figure 1.

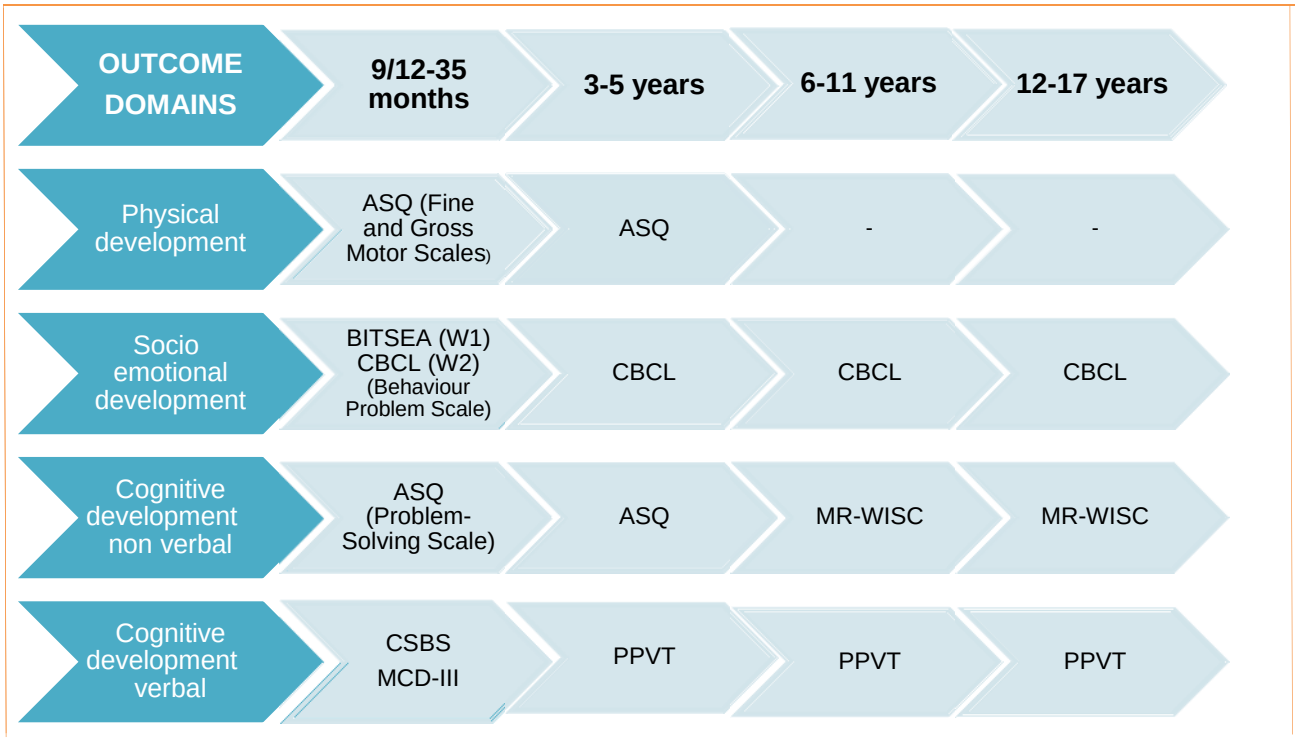
Figure 1: Measures of development by developmental domains



4.2.1 Harmonisation of measures

The measures capture different aspects of a child's development for a particular age range (Figure 2).

Figure 2: Harmonisation of Measures



Children were included in the POCLS cohort when they first entered OOHC on final orders for the first time from birth to 17 years. The children were administered the test appropriate for their age at the time of each interview. Each measure was developed for different purposes with some measures designed as screening tools rather than diagnostic tools. For the analyses in this report, an established cut-offs approach was used which involved harmonising the measures by converting scores to a binary indicator of typical versus atypical development (Watson et. al., 2020).[7]

4.2.2 Socio-emotional development

The Brief Infant Toddler Social and Emotional Assessment (BITSEA, Briggs-Gowan & Carter, 2006) and Child Behaviour Check List (CBCL, Achenbach & Edelbrock, 1981) were administered to assess children's socio-emotional development. The BITSEA was completed by carers for children aged 9 months to 36 months in Wave 1 only. From

Wave 2, the CBCL was used for all ages as it is a more comprehensive measure and considered to be more relevant for children in OOHC.

The BITSEA scale consists of two domains: Behavioural Problem (31 items) and Social Competence (11 items). Each domain of the BITSEA yields a total raw score and then the raw scores are standardised to percentile ranks. The scores (percentile ranks) can be classified as falling into clinical, borderline or typical ranges. For more information on scoring please refer to the Measures Manual (Watson et. al., 2020).

The CBCL yields subscale scores for a range of conditions and competencies. There are two principal composite indices: internalising and externalising behavioural problems, and a total problem score. The CBCL scores can be presented in a raw score format, or as age standardised T-scores. Scores can be classified as falling into clinical, borderline or typical ranges.

The BITSEA and CBCL both generate a Behaviour Problem Score and a Social Competence Score. The POCLS children aged 9 months to 17 years have completed data on the Behaviour Problem Score for the BITSEA or CBCL. To enable the use of a consistent measure for socio-emotional development across waves, the BITSEA Behaviour Problem score based on percentile rank (wave 1: 9- 24 months) and the CBCL Behaviour Problem T-score (wave 1:3-17 years; Wave 2 onwards: 1.5-17 years) were used and harmonised as a binary measure of socio-emotional development (i.e. typical or atypical) (Watson et. al., 2020).

4.2.3 Cognitive development

Children's cognitive development was measured using verbal and non-verbal development. To assess verbal ability, Communication and Symbolic Behaviour Scales Infant and Toddler Checklist (CSBS), the Macarthur-Bates Communication Development Inventories III (MCDI-III) and Peabody Picture Vocabulary Test (PPVT) were administered. For non-verbal ability, the Ages and Stages Questionnaire (ASQ), the Problem Solving scale and Matrix Reasoning (MR WISC-IV) were used.

4.2.3.1 Verbal ability

The CSBS measures cognitive and language development across seven indicators: emotion and use of eye gaze; use of communication; use of gestures; use of sounds; use of words; understanding of words; and use of objects (Wetherby & Prizant, 2003). The items are scored on a 2, 3 or 4 point scale and summed to yield three composite raw scores (social composite, speech composite, and symbolic composite) and a total raw score. The total raw score is then converted to a standardised score based on the chronological age of the child. The CSBS total standardised scores were used for children less than two years (Wave 1 only) to measure verbal ability (i.e. typical, clinical and needs intensive support).

The MCDI-III were used to assess verbal skills in children aged 24-29 months of age in waves 1 and 2. There are two equivalent word checklists, Form A and Form B, both with 100 items. The carer indicates the number of words used by the child. The total scores range from 0 to 100 and summated raw scores are then standardised for age. Cut-off points and percentile ranks of the standardised scores (Waves 1 and 2: 24-35 months) are used to identify potential problems in children's development (i.e. typical, clinical and needs intensive support).

The PPVT standard scores and cut-offs were used from Wave 1 onwards for 3-17 year olds to identify possible concerns relating to verbal ability. The scale consists of 228 items with different starting points for children of different ages. The items use sample words from 20 content areas (e.g., actions, vegetables, tools) and parts of speech (nouns, verbs, or attributes) across all levels of difficulty. The scale yields raw scores based on correct answers and errors. The raw scores can be converted to age and grade-based standard scores, percentile ranks etc. and are used to identify potential problems in children's development (i.e. typical, clinical and needs intensive support).

4.2.3.2 Non verbal ability

The WISC-IV was completed by children aged 6-17 years as a measure of logical reasoning or fluid intelligence. Each child is given different items on the basis of age, with older children skipping earlier questions. The total score has a possible range of 0 to 35. Raw scores are converted to standardised scores which are age adjusted. WISC-IV standard scores and cut offs were used for the POCLS cohort aged 6-17 years from Wave 1 onwards to identify possible concerns relating to non-verbal ability.

The Ages and Stages Questionnaire (ASQ, Squires et al. 2009) was administered to children aged 9 to 66 months of age to assess five key development areas: communication, gross motor skills, fine motor skills, problem solving and personal social. The problem solving score was used to assess non-verbal ability.

4.2.4 Physical health development

The ASQ scores for gross motor skills and fine motor skills were used to examine physical health development. There are six items (a total of 30 items) on each domain. Each domain has 19 age specific questionnaires and each questionnaire (for different age intervals) has standardized cut-offs. These cut-offs indicate whether a child needs intensive professional support, or monitoring (borderline, clinical) or the child‘s development is in the normal range (typical).

ASQ scores on gross motor skills and fine motor skills were recoded using the cut-off for each age interval to create a binary variable: 1= typical and 0 = atypical development. As discussed earlier, the ASQ score of problem solving was used to measure non-verbal cognitive skills in those who were too young for the WISC matrix reasoning test.

4.2.5 Deriving a Measure of Placement Stability

Placement instability in OOHC represents the movement of children from one placement to another. As discussed earlier, this concept is easy to understand but difficult to measure as there are numerous factors that impact upon a child's experience of placement changes. This includes the number of placements, the duration of placement, timing of the placements, type of placements, and the reasons for a placement change. This study made an attempt to derive/develop a measure of placement stability with the aim of capturing all these aspects of placement changes. In doing so, a number of factors were considered which are discussed in the following section.

4.2.5.1 Counting rules for placement change

In considering what counts as a placement change, advice was sought from the PCI team and the Information Management team in DCJ. After careful consideration, the following counting rules were used in the analysis.

- Respite is a type of short term care to provide a break for carers of children from their caring roles. In this analysis, respite placements up to 21 days were not counted as placement changes. This recognises the fact that some respite placements may be longer than the usual seven days and allows us to count OOHC placement changes which constitute a placement change rather than a temporary relief placement.
- Any placement (except for respite) with a duration of less than 7 days was excluded unless the stated purpose of the placement was to be permanent[8].
- Children who were adopted or restored[9] in waves 2 or 3 were excluded from this analysis allowing us to focus on the POCLS children who had been in OOHC over the three waves of interview.
- Due to the focus on children OOHC, placements with parents are excluded. However, placements with parents which were part of a transition towards restoration (a permanent return to parents) were included as well as the

[8] Permanent placements less than seven days could include placements that start within 7 days of the end of the collection period. It could also include data errors.

[9] On advice from PCI, children on Guardianship orders were included in the analysis.

placements of children who self-restored (children who returned to home by their own wish).

- Placements in residential care facilities were not excluded from the analysis. Due to small numbers in the sample (*n* = 47), and item non response, individuals in residential care placements were not observed in the analysis.[10]

Various measures of placement stability were examined using alternative counting rules, including all placements regardless of placement type or duration. Additional models were generated using these different measures of placement stability and they reflected similar patterns of associations regardless of the counting rule used.

4.2.5.2 Measures of placement stability

There are a number ways to measure placement stability. The most common approach is to count the number of placements but this approach has a potential risk of double counting placements. For example multiple records for a child placed with the same carer with overlapping time frames.

The number of *distinct* placements can be used, excluding placements with carers with whom the child has 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. For example, if a child moves between two homes every month (e.g. two family members), this would only count as two placements in this measure (despite the potential for the OOHC experience being unstable). One possible solution is to look at distinct placement changes,[11] that is the number of placement changes to a different carer. In the example above this would be the number of times the child changes between carers (i.e. two placements or more). This avoids the double counting of administrative data, but still captures the movements between a small number of households. This is similar to the approach adopted by Wulcyzn & Chen (2017) who examined placement change caused only by changing carer ID.[12]

---

[10] Based on these counting rules, a total of 227 individual children were excluded; 25 at Wave 1, 121 at Wave 2 and 81 and Wave 3.

[11] Despite this being a measure of changes, it always counts the first placement of a period as one placement. Therefore every child has at least one placement.

[12] Numerous carer IDs are missing in the FACS administrative dataset. The most conservative appoarch is to treat them as one carer, so that changes between those with missing carer ID's are not counted as placement changes.

Count based measures of placement stability do not consider the duration of time in OOHC. This is an important consideration as a child in OOHC for ten years with three placements has different placement stability compared to a child in OOHC for a year with three placements. Duration of time in OOHC is considered by examining the number of placement changes per days (or years) in care. The number of placement changes per 10,000 person-care days has been used in other studies (Wulczyn & Chen 2017).

In a longitudinal context, it is also important to consider what period of time in a child's OOHC experience should be examined. Count based measures often look at the total number of placements over the OOHC experience. This approach may be simple but does not utilise data from multiple time points. It does not allow for examination of placement changes in the more distant past and more recent periods.

This analysis considers a measure of the recent history of a child's OOHC experience by counting placements that occurred between interviews (Waves). This allows us to examine a recent history of placements to see if it has an impact on development. To construct this measure we examined a child's experience in three periods: entry 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 is resolved by the use of a per 1,000 care days based measure. Therefore, the measure varies across both individuals and time periods with it being the number of placement changes per 1,000 care days between waves for each child. This measure is adopted as the measure of placement stability in this report. This is the equivalent of the number of placement changes per 2.7 years in care[13].

The counting rule adopted for inclusion of a placement in a wave was that the placement had been active at any point during the period between two waves[14], that is, the placement did not end in the prior period. This method results in some placements being counted multiple times across some waves. It reflects that an enduring placement is a part of a child's recent experience. This would not change the results as its exclusion would remove a single placement from every child's experience. For example, if a child

[13] For example a child who has two placement changes in 18 months (approx. 18 x 30.44 = 547.92 days) has 1,000/547.92 x 2 = 3.65 changes per 1,000 days.

[14] These periods are entry to Wave 1, Wave 1 to Wave 2, and Wave 2 to Wave 3.

had a placement that started prior to Wave 1 and ended before Wave 2, this would be included for Wave 1 and Wave 2 but not for Wave 3.

4.3 Analysis

The analysis in this report used unweighted data[15] for Waves 1-3 and was conducted in STATA 14.2. The sample examined consists of data of any study child who provided the necessary data in any of the three waves. Descriptive analysis of the independent factors and outcome variables was conducted. Analysis using binary logistic regression was conducted for each developmental outcome with each independent variable.

4.3.1 Independent variables included in the analysis

A number of variables[16] were included in the analysis based on the literature review regarding factors that influence developmental outcomes for children in OOHC.

Child characteristics:[17]

- age at entry (in years), gender (male/female), cultural background (Aboriginality, CALD, Other Australian), DCJ District,
- sum of the number of ROSH reports prior to entering care,
- type of ROSH reports prior to entering care – a binary variable (Y/N) was created to reflect the type of reports including physical abuse, sexual abuse, neglect, psychological abuse, psychological harm, domestic violence, carer serious mental health, carer emotional state, carer drug alcohol abuse, carer other issue, risk behaviour of the child/young person and prenatal issues.

Placement characteristics:

[15] Unweighted data was used for two reasons. Firstly, the variables that were used to construct the weights were already included in the regression models estimated in the analysis. Secondly, placement stability was calculated on the basis of placement changes between waves and therefore accounts for some variation that may also be captured in the weights that adjusts for non-response bias.

[16] Variable names are provided in the Appendix.

[17] Information on child characteristics and placement type were taken from DCJ administrative data.

- Placement stability – number of placements per 1,000 care days between waves (see Section 3.2.5)[18]
- Predominant placement type - foster care, relative/ kinship care (with Aboriginal carer)[19], relative kinship care (non Aboriginal carer), residential care, or other (supported accommodation, independent living or other)
- District group – The fifteen DCJ districts were categorised into seven larger groups.[20]

Carer characteristics:[21]

- Age, income, cultural background, education
- carer satisfaction – a binary variable (Y/N) was created for each question including; being able to reach the caseworkers when needed, assistance from caseworkers, your working relationship with other agencies related to study child (early childhood education, counsellors, etc.), having enough information about study child and opportunities to meet other foster or kinship families,

[18] This differs from the per 10,000 day approach used by Wulczyn and Chen (2017). The scale is arbitrary but the use of 1,000 is preferred as it is more realistic time scale for a child who enters care.

[19] DCJ has policies regarding placements of children that are Aboriginal and Torres Strait Islander. See https://caseworkpractice.intranet.facs.nsw.gov.au/mandates/children-in-care/placing-a-child-in-oohc-and-supporting-them-through-their-transition#section-366260. Policies reflect the Aboriginal and Torres Strait Islander Child Placement Principle (ATSICPP). https://intranet.facs.nsw.gov.au/__data/assets/pdf_file/0005/431807/LAG-Resources-Understanding-and-applying-the-Aboriginal-Torres-Strait-Islander-Child-Placement-Principles.pdf

[20] According to geographic level 2, districts were categorised as; 1.South Eastern, Northern & Sydney Districts, 2. South Western Sydney District, 3. Western Sydney and Nepean Blue Mountains Districts, 4. Illawarra Shoalhaven & Southern NSW Districts, 5. Mid North Coast & Northern NSW Districts 6. Murrumbidgee, Far West & Weestern Districts, 7. Hunter New England and Central Coast Districts. Statewide services were excluded due to small numbers.

[21] Carer characteristic information was obtained from the survey data and may vary across waves.

- Carer psychological distress was assessed using the K10. Scores were categorised as low, moderate, high or very high. [22]
- 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.

4.3.2 Statistical Model of Childhood Development

Longitudinal modelling and unobserved heterogeneity

Mixed effect modelling[23] was used for the purpose of this analysis. This method allowed us to examine factors that were measured (as listed in Section 3.3.1) in addition to factors that were not measured but may affect developmental outcomes over time (Rabe-Hesketh & Skrondal, 2008).

As each developmental outcome has been converted into a binary indicator, mixed effect binary logit models were used. The use of binary probability models was identified to be the most appropriate to examine the associations of placement stability and other risk or protective factors with a child's development.[24] The mixed effect binary logit model used in this analysis is a random intercept only model. A random slope could not be estimated

[22] This was done as it was hypothesised that this may have a non-linear relationship with development. i.e. the effect is associated with high or very high levels of carer's stress

[23] Mixed effect modelling allows for individuals and time periods to have unobserved factors, also known as unobserved heterogeneity, that are unique to a particular individual and/or period but are free to differ between other individuals/periods. Factors common to a particular time period are represented by a set of parameters (fixed effects) while those factors which are common to an individual over all time periods are captured on a distribution (random effects). Fixed effects may reflect particular policy or social factors that would be common to all individuals while random effects can be seen as a measure for an individuals natural talent or resilence. By capturing these unobserved factors, statistical models can more accurately capture the relationship between outcomes and risk and protective factors. In order to estimate these types of models it is required that the same individual is observed over multiple periods.

[24] The binary logit is a non-linear model and its parameters cannot be directly interpreted in meaningful units. In this analysis, these were transformed into odds ratios, average marginal effects and average probabilities at specified values for variables of interest. Average marginal effects and average probability at specified values are both calculated in similar ways (Cameron & Trivedi, 2005). The average probability calculates the probability for each observation at observed variables but allows for the value of particular variables to be specified values. Similarly, the average marginal effect calculates the change of probability for a small change in a particular variable while all variables are treated at their observed values in the sample.

with the current data.[25] The random effect captures the unobserved information common to an individual observed at multiple time points.

Model development and selection

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 (see Appendix 8.3). Variables which were not significant at p =0.05 were removed from the full models to develop the final models. Specific variables of interest including: placement stability[26] and demographic characteristics of children (age of entry, sex, cultural background, placement type, district group) were included in the final model regardless of their statistical significance.

Ageing Effect

The age that a child enters OOHC has been identified as a factor that influences outcomes. A systematic review found mixed results for placement age on outcomes but concluded that, overall, children who enter care at an older age have lower wellbeing than those who enter at a younger age (Pritchett 2013). In order to capture this relationship, the age at entry variable is used in the modelling along with time indicator variables (wave) to capture any systematic change as the children age.

Ageing effects also need to be considered because it is expected that development as measured on a number of the development measures will peak at particular ages. [27] In the field criminology, criminality peaks in late adolescence and that this can be related to externalising behaviour (Odgers et al, 2008, Moffitt 2018). Other studies in the field of cognitive development have identified that cognitive development also peaks at particular ages (Xu, 2019, Zombairi & Piotrowski, 2019). The design of the POCLS study means that the cohort of children entered OOHC at the same time. In addition, over half of

[25] This was likely due to the limited occasions observed for each individual (i.e. a maximum of three time points (waves) with some individuals only observed at one or two waves). The lack of variation within individuals rendered the likelihood function relatively flat and difficult to identify point estimates which met convergence criteria.

[26] Additional models were generated using placement stability as a categorical variable (up to 2, 2 to 4, and more than 4 placements/1,000 care days between waves). The results were generally similar to the models generated with the continuous measure of placement stability. It is noteworthy the AIC (model fit criteria) were better for all the models with the continuous variable. See Appendix 8.1 for model fit criteria.

[27] The authors would like to acknowledge Ben Edwards, Center for Social Research and Methods, Australian National University, who provided input on a preliminary presentation of this anlysis which highlighted this issue.

children entered care at less than 3 years of age. There is a high correlation between the age of entry and the age at interview (r = 0.94). Due to this high multicollinearity, two sets of models were estimated; age at entry with a binary indicator for two of the three waves, and age at interview with both a linear and quadratic form. It should be noted that both sets of parameters (for the other variables) are very similar suggesting the same variation is captured by both specifications. This section reports the results for the age at entry models. Parameters in the form of odds ratios are reported in Appendix (8.2).

Likelihood test for mixed effect models

Mixed effect models are a generalised form of standard regression models that allow for observations to be nested, in this case individuals observed at multiple time points. A series of tests was conducted to assess whether the mixed effect models were significantly different from the standard regression (the binary logistic regression). The results of the likelihood ratio rejected the null hypothesis that the ordinary logistic regression is preferred (Appendix 8.1). This suggests there are some unobserved factors that are associated with a child's development that remain constant over time. Therefore the use of mixed effect modelling is a valid improvement to standard regression models.

Model fit

To assess the fit of the model, a generalisation of the McKelvey and Zavoina Pseudo R^2 (Langer, 2017) was utilised which allows it to be applied to mixed effect models. The amount of the variation explained by the fixed effects (including the variables of interest) and those that are attributable to the random effects (unobserved heterogeneity of individuals) are captured by this measure.[28]

[28] This generalization of the Pseudo R^2 was estimated using the text file provided by Langer (2017).

5 Results

5.1 Descriptive statistics

There were 1,285 children and young people interviewed at Wave 1, 1,200 at Wave 2 and 1,033 at Wave 3. The number of children that participated in the interview (eligible sample) varied by wave and the number of observations also varied by outcome domain.

In this report *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.

Tables 1 and 2 report descriptive statistics for all independent variables. Half (50.3%) of the observations are male, almost 40% identified as Aboriginal and 15% identified as CALD. This reflects the POCLS interview cohort.

Table 1: Summary statistics for child characteristics (pooled sample Waves 1 - 3)

Child characteristics	n	%*	Mean	SD	Range
Demographics	**3,518**				
Gender male[1]		50.3			
Aboriginal[1]		39.6			
CALD[1]		14.8			
Age at entry to OOHC (years) [1]			3.23	3.80	0-15
Child protection history	**3,518**				
Number of ROSH reports prior to entry[1]			8.48	8.05	0-48
ROSH reported issues[1]					
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[2]	**3,256**				
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[3]	**3,248**				
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 1,000 care days between waves[4]	**3,156**		3.25	1.98	0.77-18.43
Social Cohesion and Trust Scale[5]	3,465		8.83	2.90	2-20

N = observations of individual children [1]n = 1,479 [2] *n* =1,340 [3] *n* = 1,345 [4] *n*= 1,300. [5] *n* = 1,477 individuals
* The proportion reflects the pooled sample (i.e. proportion of Observation/N) rather than the proportion of individuals/n in the interview cohort at a particular wave.

Table 2: Summary statistics for carer characteristics (pooled sample Waves 1 - 3)

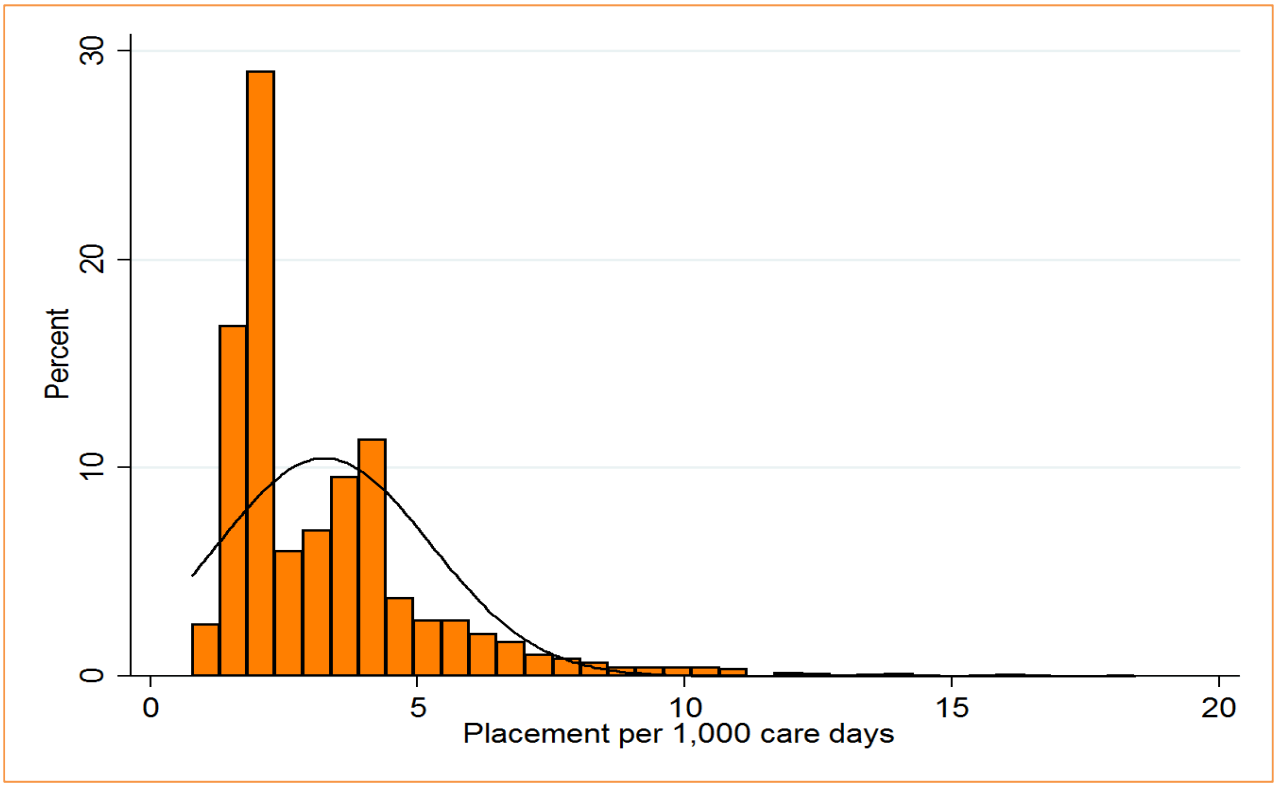
Carer characteristics	Observations n	%*
Carer cultural background[1]	**3,497**	
Other Australian		62.9
Aboriginal		13.9
CALD		11.6
Culture unspecified		11.5
Carer finance[2]	**3,097**	
<40k per annum		25.1
40k to <80k		36.5
≥80k		38.4
Carer age[3]	**3,349**	
≤40 years		23.1
41-50 years		35.0
51-60 years		28.1
≥61 years		13.9
Carer education[4]	**3,516**	
High school or Less		43.9
University education		17.8
Other post school qualification		38.4
Carer satisfaction[5]		
Satisfied with being able to reach caseworker	3,224	80.5
Satisfied with assistance from case workers	3,215	78.6
Satisfied with working relationship with other agencies	3,110	96.8
Satisfied with having enough information about the child	3,329	87.1
Satisfied with opportunities to meet other families	3,100	89.6
Carer stress level[6]	**3,420**	
Low		79.5
Medium		14.2
High		4.4
Very high		1.9

[1] Carer cultural background was the only variable that was not included in any of the final models as it was not significant in bivariate analysis.
n=individual children [1] 1,476 [2] 1,383 [3] 1,432 [4]1,478 [5]individuals vary by question; 1,374, 1,374, 1,343, 1,382, 1,334 respectively. [6] 1,437 individuals.
* The proportion reflects the pooled sample (i.e. proportion of Observation/N) rather than the proportion of individuals/n in the interview cohort at a particular wave.

5.1.1 Placement stability

Placement stability, as measured by number of placements per 1,000 care days[29] (approximately 2.7 years), is highly positively skewed (Figure 3).[30] The long tail indicates that a small number of children had a large number of placement changes. The median is 2.8 placements /1,000 care days indicating that 50% of the sample had less than one placement per year in care. The mean number of placement changes/1,000 care days was 3.5. This suggests that children in the pooled sample had an average of 1.3 placements per year in care.[31]

Figure 3: Placements per 1,000 care days (*N* = 3,156 observations)



[29] See Section 3.5.2 for counting rules and measure derivation.

[30] A similar distribution pattern was also found for the other measures of placements stability that were examined.

[31] DCJ administrative data up to 30 June 2016 was used to derive the placement stability measure.

The mean number of placements/1,000 care days is higher in wave 1 (4.21) than the waves 2 and 3 (2.62 and 2.61 respectively) (Table 3). This is not unexpected as children are likely to have greater instability as they enter OOHC (Rubin, 2016).

Table 3: Summary statistics for placement stability measure (number of placements/1,000 care days) by wave

	Wave 1	Wave 2	Wave 3
Observations	1,260	1,005	891
Mean	4.21	2.62	2.61
Median	3.65	2.10	2.07
Standard deviation	2.49	1.20	1.21
Minimum	0.85	0.77	0.84
Maximum	18.43	8.84	12.45

5.1.2 Developmental outcomes

Each developmental outcome was measured by a binary variable indicating typical or atypical development in a particular domain. For all measures the majority of children are developmentally typical ranging from 70% for socio-emotional skills to 80% for gross motor skills (Table 4).

Table 4: Summary statistics for individuals and observations by developmental outcome domain (pooled sample Waves 1 - 3)

Variable	Wave 1 n	Wave 2 n	Wave 3 n	N	Proportion typical %
Socio-emotional	1,190	1,200	1,033	3,423	71.6
Verbal	1,285	1,200	1,033	3,518	79.2
Non-verbal	1,233	1,139	965	3,337	75.5
Fine motor	780	605	396	1,781	69.9
Gross motor	780	606	395	1,781	80.4

*Source POCLS interview cohort. Note this represents the eligible cohort not the estimated sample.[32]

Children may transition between typical and atypical development over time. Table 5 reports descriptive results of children's outcome status over time. This is based on a tracked sample of children (i.e. children who had complete data on each developmental outcome for all three waves).

[32] The mixed effect models (Table 5.3.1 – 5.7.1) have an estimation sample which varies in size based on the number of children with complete data for the independent and dependent variables at each wave. A child could have participated in interviews at any wave but is included in a model only if they had complete data for all the relevant variables.

Table 5: Transition paths by developmental outcome domain for children with outcomes across waves 1-3 (tracked sample)

Developmental outcome	Number of children N	Proportion typical %
Socio-emotional		
Typical at all three waves	460	57.1
Atypical at all three waves	110	13.7
Improved to typical in Wave 2	59	7.3
Declined to atypical in Wave 2	44	5.5
Improved to typical in Wave 3	27	3.4
Declined to atypical in Wave 3	60	7.5
Typical to atypical to typical	21	2.6
Atypical to typical to atypical	24	3.0
*Total	805	100
Verbal		
Typical at all three waves	564	64.0
Atypical at all three waves	45	5.1
Improved to typical in Wave 2	72	8.2
Declined to atypical in Wave 2	36	4.0
Improved to typical in Wave 3	29	3.3
Declined to atypical in Wave 3	58	6.6
Typical to atypical to typical	59	6.7
Atypical to typical to atypical	19	2.2
*Total	882	100
Non-verbal		
Typical at all three waves	409	54.8
Atypical at all three waves	55	7.4
Improved to typical in Wave 2	104	13.9
Declined to atypical in Wave 2	30	4.0
Improved to typical in Wave 3	43	5.8
Declined to atypical in Wave 3	47	6.3
Typical to atypical to typical	43	5.8
Atypical to typical to atypical	16	2.1
*Total	747	100
Fine motor		
Typical at all three waves	156	43.9
Atypical at all three waves	35	9.9
Improved to typical in Wave 2	47	13.2
Declined to atypical in Wave 2	13	3.7
Improved to typical in Wave 3	24	6.8
Declined to atypical in Wave 3	24	6.8
Typical to atypical to typical	39	11.0
Atypical to typical to atypical	17	4.8
*Total	355	100

Table 6: Transition paths by developmental outcome domain for children with outcomes across waves 1-3 (tracked sample) (cont'd.)

Gross motor		
Typical at all three waves	225	63.6
Atypical at all three waves	16	4.5
Improved to typical in Wave 2	55	15.5
Declined to atypical in Wave 2	8	2.3
Improved to typical in Wave 3	10	2.8
Declined to atypical in Wave 3	11	3.1
Typical to atypical to typical	17	4.8
Atypical to typical to atypical	12	3.4
Total	354	100

*Total is number of children with data on each domain in all waves.

For children who were observed at all three waves (*n* = 805), more than half (57.1%) remained developmentally typical for socio-emotional development and around 14% remained atypical across all three waves (Table 5). Almost one third of the children (29.2%) showed a change in outcome category (between typical and atypical) across the three waves.

For verbal development, about two thirds (64%) of children who were observed in all three waves (*n* = 464), remained developmentally typical while only 5.1% remained atypical across all three waves. Similar to verbal development, for non-verbal development, children who were observed in all three waves (*n* = 747), more than half (54.8%) remained developmentally typical while only a small proportion (7.4%) remained atypical across the three waves.

For fine motor skill development, almost half (46.2%) of children who were observed in all three waves (n = 355), changed categories across the three waves. Almost half (43.9%) remained developmentally typical and 9.9% remained atypical across all three waves. For gross motor skill, 63.6% of the children who were observed in all three waves (n = 354) remained developmentally typical and 4.5% remained atypical across all three waves.

5.2 Bi-variate results

5.2.1 Placement stability and development

The results of the analyses of the bi-variate relationship of placement stability (number of placements/1,000 care days) with each developmental outcome domain for each wave are presented in Table 6. This analysis looks only at the relationship between placement stability and developmental outcomes. It does not take account for other factors that may

also impact on developmental outcome. The average marginal effects[33] of these models can be seen in Table 6.

Table 7: Relationship between placement stability and developmental outcomes by wave

Developmental outcome	Average Marginal Effect Wave 1	Average Marginal Effect Wave 2	Average Marginal Effect Wave 3
Socio-emotional	-0.018*	-0.045*	-0.064*
Verbal	-0.002	-0.003	0.003
Non-verbal	-0.016*	-0.024*	0.007
Fine motor	-0.016*	-0.009	-0.041
Gross motor	-0.022*	-0.027*	-0.009

* Significant at p< 0.05.
This is based on children with complete data for developmental outcomes and placement stability measure by wave.

Placement instability has a significant negative relationship with socio-emotional outcomes at all three waves, that is children with higher levels of placement instability are observed as having a lower probability of being typical in socio-emotional outcomes. Results indicate that with one more placement/1,000 care days, the probability of being in the typical range socio-emotionally reduces by 1.8, 4.5 and 6.4 percentage points in Waves 1, 2 and 3 respectively.[34]

The relationship between placement stability and verbal cognitive development is not significant. For non-verbal development, placement instability has a significant negative relationship at Waves 1 and 2. With one more placement/1,000 care days, the probability of being in the typical range in non-verbal development reduces by 1.6 and 2.4 percentage points in Waves 1 and 2 respectively.

[33] Average marginal effects characterize the relationship of non-linear models in the units of the original model. For a one unit change of the independent variable, the dependent variable will change by an average of the estimated number of units. They are calculated by estimating the change in the dependent variable (i.e.probability of being developmentally typical) for a small change in an independent variable while all the other independent variables are kept at their observed values and then averaging the observed effects. The Average Marginal Effect can be treated as similar to the parameters from a ordinary linear regression model (which are also AME as the slope does not vary with the independent variables). For a further discussion of this topic see Cameron and Trivedi (2005).

[34] The placement stability measure was constructed by examining a child's experience in three periods; entry to the Wave 1 interview, Wave 1 to the Wave 2 interview, and the Wave 2 to Wave 3 interview.

Placement instability has a significant negative relationship with fine motor skills development at Wave 1. With one more placement/1,000 care days, the probability of being in the typical range in fine motor skills reduces by 1.6 percentage points in Wave 1. The association between placement stability with gross motor skills development is significant at Waves 1 and 2. With one more placement/1,000 care days, the probability of being in the typical range in gross motor skills development reduces by 2.2 and 2.7 percentage points in Waves 1 and 2 respectively.

5.3 Model results

This section reports the results of the multi-variate models of placement stability on each developmental outcome. These models take into account other factors that influence development to provide better understanding of the factors that impact each outcome.

5.3.1 Socio-emotional development

The results for the socio-emotional development model are shown in Table 7.

There were no significant differences in the probability of a child being typical in socio-emotional development on the basis of their gender, Aboriginality, CALD status or placement in DCJ district (geographical location).

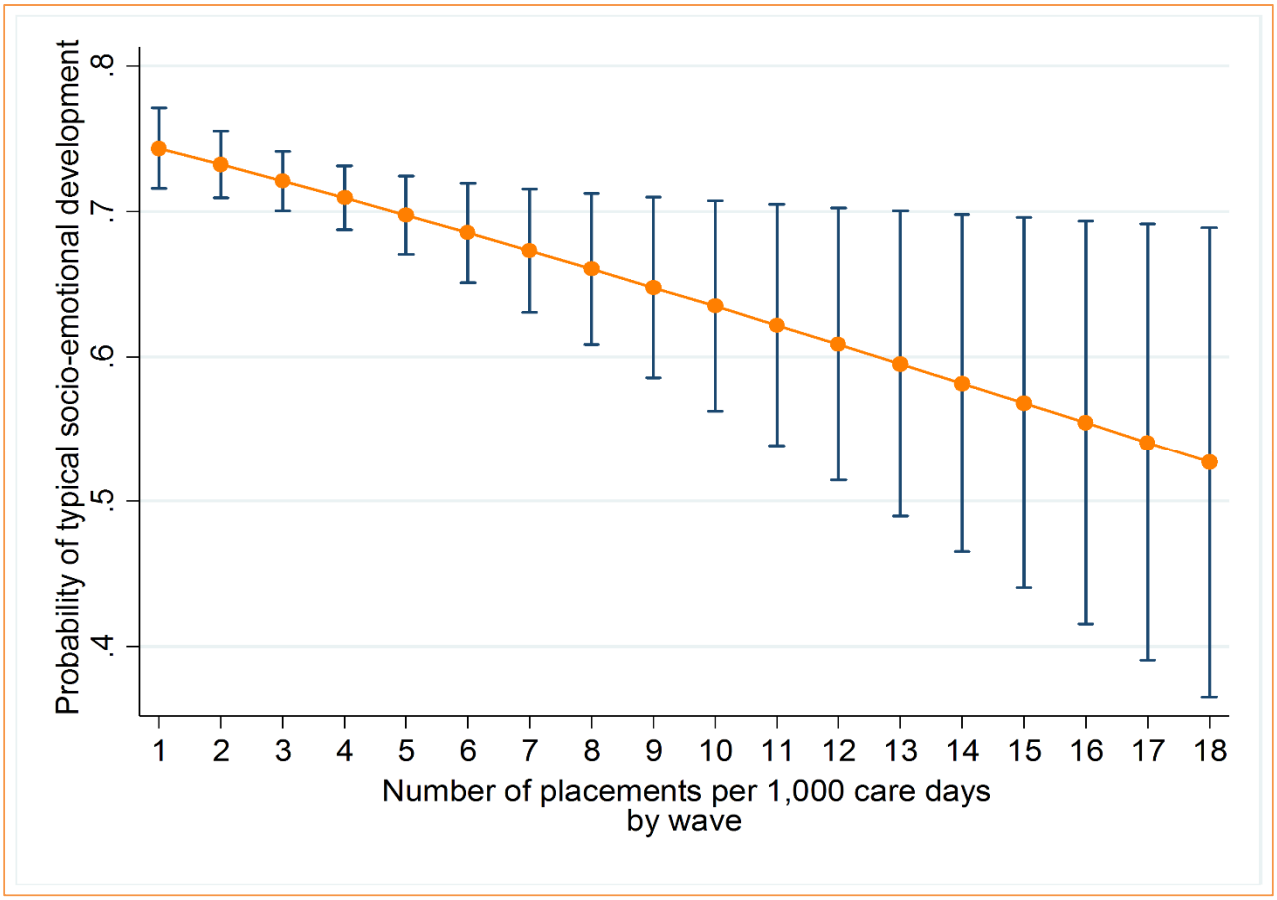
Table 8: Mixed effect model for socio-emotional development

Variable	Average Marginal Effect	Standard Error	P Value
Number of placements per 1,000 care days between waves	**-0.012**	**0.005**	**0.012***
Gender - male (Ref female)	-0.025	0.021	0.234
Aboriginal status - Aboriginal (Ref non-Aboriginal)	0.017	0.023	0.460
CALD status – CALD (Ref non-CALD)	0.043	0.031	0.167
Age at entry to OOHC (years)	**-0.016**	**0.003**	**0.000***
***ROSH report type: (Y/N)* (Ref No) psychological harm**	**-0.110**	**0.025**	**0.000***
Predominant placement type – (Ref Foster carer)			
Relative and kinship care - Aboriginal	0.054	0.043	0.206
Relative and kinship care – non-Aboriginal	**0.077**	**0.024**	**0.001***
Residential care	0.135	0.183	0.461
Others	0.037	0.066	0.573
Carer finance (Ref < $40K)			
40k to <80k	0.043	0.023	0.061
80k +	0.033	0.025	0.191
Carer age (Ref < 40 years)			
41- 50 years	0.025	0.027	0.344
51- 60 years	**0.064**	**0.028**	**0.025***
>= 61 years	**0.098**	**0.034**	**0.004***
Carer satisfaction with (Ref Not satisfied)			
Assistance from caseworkers	0.030	0.021	0.159
Working relationship with other agencies	**0.197**	**0.055**	**0.000***
Having enough information about child	**0.126**	**0.027**	**0.000***
Carer psychological distress (Ref Low)			
Moderate	**-0.191**	**0.028**	**0.000***
High	**-0.186**	**0.044**	**0.000***
Very high	**-0.268**	**0.075**	**0.000***
DCJ District groups (Ref Hunter New England and Central Coast)			
Murrumbidgee, Far West & Western	-0.012	0.033	0.706
Illawarra Shoalhaven & Southern	0.026	0.038	0.492
Mid North Coast & Northern NSW	0.052	0.034	0.132
Western Sydney & Nepean Blue Mountains	-0.012	0.034	0.727
South Eastern, Northern & Sydney	0.043	0.042	0.304
South Western Sydney	0.000	0.040	0.993
Time fixed effects – (Ref Wave 1)			
Wave 2	-0.001	0.017	0.942
Wave 3	**-0.093**	**0.019**	**0.000***
Variance (random intercept)	**6.186**	**1.102**	**0.000***
Statistics			
Number of individuals	1,138		
Number of observations	2,387		
Chi squared	180.63	DF 29	0.000
AIC	2,259.92	DF 31	
Residual intraclass correlation	0.653	0.040	
Pseudo R^2 fixed effects	0.446		
Pseudo R^2 fixed + random effects	0.652		

Placement stability, controlling for other factors in the model, was significant associated with the probability of a child being in the typical range in socio-emotional development. Figure 4 shows that on average the probability of being in the typical range decreases over time with the increase of placement numbers (per 1,000 days between waves). Results show that with one more placement/1,000 care days between waves, the probability of being typical decreases by 1.2 percentage points. For example, children with 1 placement/1000 care days had an estimated average probability of being in the typical range of 74% and this decreases to an average of 66.0% for 8 placements/1,000 care days.[35]

[35] Figure 4 shows that each additional placement results in a reduction in the average probability of being typical. For example, children with 1 placement/1,000 care days had an estimated average probability of being typical of 74% and for children with 18 placements/1,000 care days, the average probability of being typical reduces to 53%. It should be noted that as the number of placements increases the confidence intervals become quite large due to fewer children with large numbers of placements. Taking a conservative approach using the lower bound of 1 placement (71.6%) and upper bound of 18 placements (68.9%), results in a 2.7 percentage point reduction in the probability of being typical.

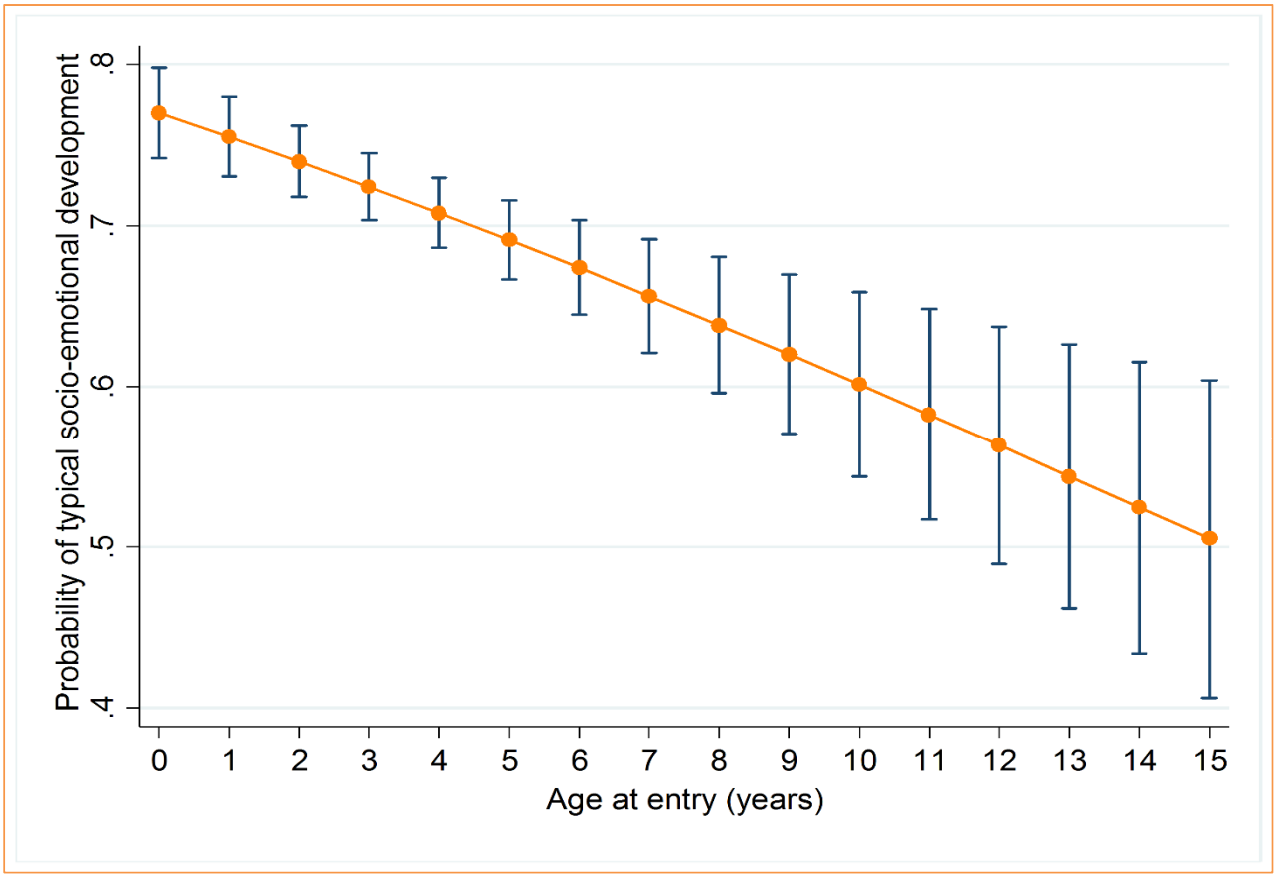
Figure 4: The average probability of being typical in socio-emotional development by the number of placements/1,000 care days between waves



The *age at entry to OOHC* had a significant negative association with the probability of a child being in the typical range in socio-emotional development. For each year increase in the age of entry, the probability of being in the typical range decreases by 1.6 percentage points (Figure 5).[36]

[36] The estimated average probability of a child being developmentally typical in the socio-emotional domain is 77% if entering care below the age of 1 year and this reduces to 51% if the child enters OOHC at the age of 15. The precision of these effects decrease as the age of entry increases due to fewer children entering care at older ages in the sample.

Figure 5: The average probability of being typical in in socio-emotional development by age of entry to OOHC



With regards to type of harm experienced prior to entering care, children who had *ROSH reports* involving psychological harm had an 11.0 percentage point decrease in the probability of being in the typical range in socio-emotional development compared to those who were not reported for psychological harm.

Predominant care placement type was found to be significantly associated with socio-emotional development. Children in non-Aboriginal relative/kinship care were more likely to be in the typical range compared to children in foster care (on average, a 7.7 percentage point increase). There were no significant associations for children in Aboriginal relative/kinship care, residential care or other care.

A number of carer characteristics were significantly associated with a child being in the typical range in socio-emotional development. This included *carer's age, carer's self-reported psychological distress and carer's satisfaction with their working relationship with agencies and satisfaction with the information about the child*. Carer's reported satisfaction with assistance from caseworkers and carer's income were not found to have any significant association.

Children placed with carers aged 51–60 years or 60+ years had, on average, a 6.4 and 9.9 percentage point higher probability of being in the typical range in socio-emotional development compared to children placed with carers who were less than 40 years of age. This may reflect that older carer households have more resources and experience to call upon in taking care of children. Children placed with carers who reported they were satisfied with their working relationship with other agencies had, on average, a 19.7 percentage point higher probability of being in the typical range in socio-emotional development than children with carers who were unsatisfied. 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 typical compared to children with carers who were unsatisfied.

Carers' reported psychological distress had a large association with socio-emotional development. Children placed with carers who scored moderate, high or very high on psychological distress as measured by the K10 had, on average, a 19.1, 18.6 and 26.8 percentage points lower probability of being in the typical range in socio-emotional development than children placed with carers with low psychological distress. It may be that carer stress adversely impacts a child's socio-emotional development but it is also possible that carers who have children with lower socio-emotional development exhibit greater levels of stress.

In terms of the *fixed effects for Wave (i.e., time),* children in Wave 3 were, on average, less likely to be in the typical range in socio-emotional development compared to children in Wave 1 (on average 9.3 percentage point decrease). Two different measures were used for different age groups (i.e. the BITSEA at Wave 1 for younger children and the CBCL for children aged 12 months in Wave 1 and all children aged 3 years from Wave 2). Therefore, this decline may reflect the change in the instrument being used rather than a decline in development outcomes over time. An alternative interpretation could be that as a child ages there are a greater number of ways to express externalising behaviour which could explain the decline in the probability of being typical at later waves.

The model accounts for 65.2% of the variance observed (i.e. 34.8% of the variance is not explained by the model), with the fixed effects accounting for 44.6% of the total variance observed. A fifth of the variance (20.6%) is captured by the time invariant factors which were not measured but influence a child's socio-emotional development.

5.3.2 Verbal cognitive development

The results for verbal cognitive development model are presented in Table 8.

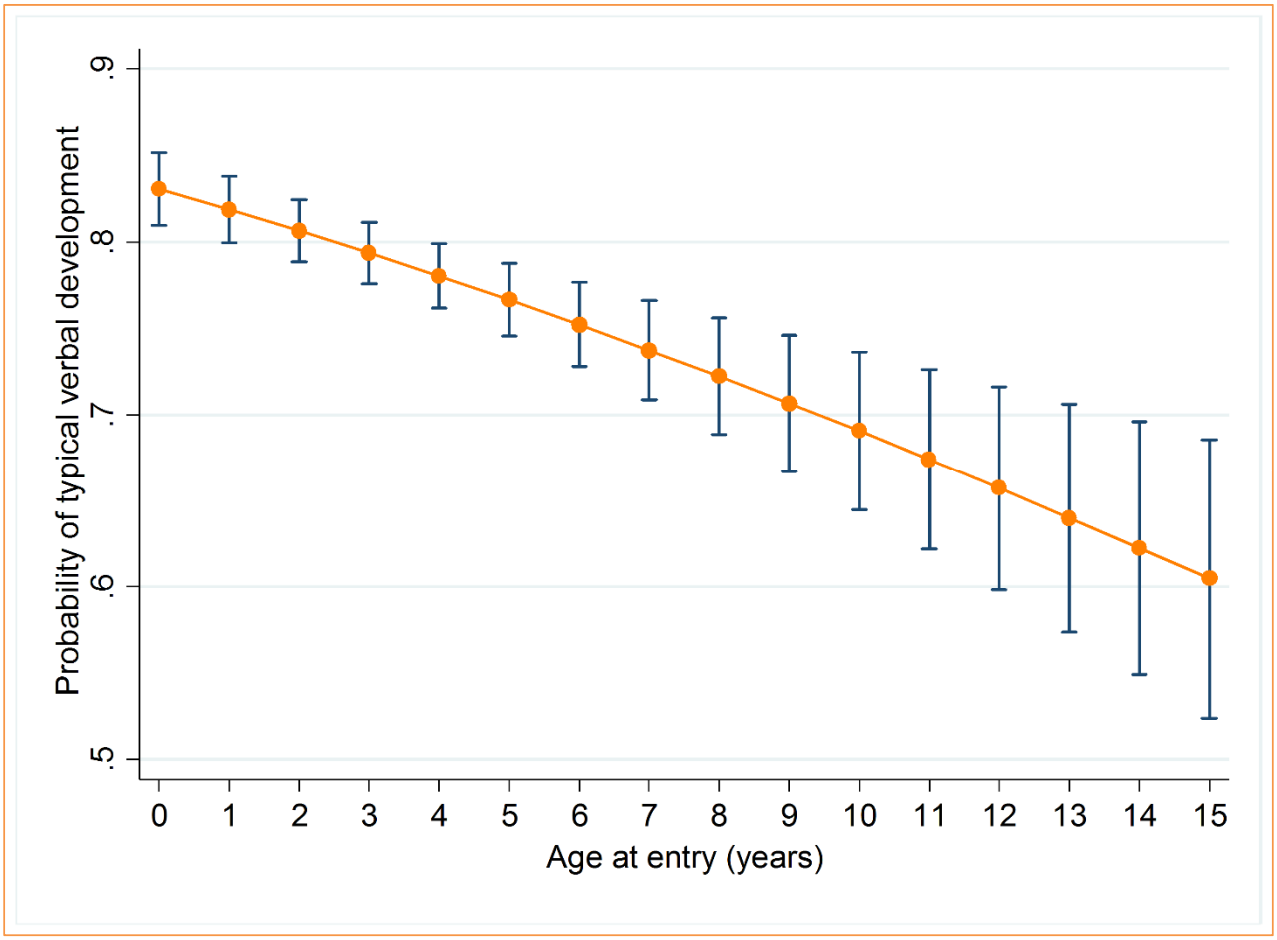
Placement stability, controlling for other factors in the model, was not significantly associated with the probability of a child being in the typical range in verbal development. There were no significant differences in the probability of a child being typical in verbal development on the basis of gender, Aboriginality or CALD status.

Table 9: Average marginal effects of the binary logit for verbal cognitive development

Variable	Average Marginal Effect	Standard Error	P Value
Number of placements per 1,000 care days between waves	-0.001	0.004	0.728
Gender - male (Ref female)	-0.014	0.018	0.428
Aboriginal status - Aboriginal (Ref non-Aboriginal)	-0.030	0.020	0.141
CALD status – CALD (Ref non-CALD)	0.012	0.026	0.639
Age at entry to OOHC (years)	**-0.013**	**0.002**	**0.000***
Predominant placement type: (Ref Foster carer)			
Relative and kinship care - Aboriginal	**-0.093**	**0.041**	**0.023***
Relative and kinship care – non-Aboriginal	**0.055**	**0.019**	**0.005***
Residential care	0.016	0.203	0.936
Others	-0.029	0.058	0.610
Carer psychological distress: (Ref Low)			
Moderate	-0.137	0.022	0.530
High	-0.007	0.036	0.845
Very high	**-0.168**	**0.065**	**0.010***
DCJ District groups (Ref Hunter New England and Central Coast)			
Murrumbidgee, Far West & Western	**-0.060**	**0.028**	**0.032***
Illawarra Shoalhaven & Southern	-0.007	0.032	0.829
Mid North Coast & Northern NSW	-0.004	0.030	0.880
Western Sydney & Nepean Blue Mountains	-0.050	0.029	0.087
South Eastern, Northern & Sydney	-0.022	0.037	0.552
South Western Sydney	-0.065	0.034	0.056
Time fixed effects: (Ref Wave 1)			
Wave 2	0.008	0.016	0.616
Wave 3	0.021	0.017	0.214
Variance (random intercept)	**1.712**	**0.308**	**0.000***
Statistics			
Number of individuals	1,240		
Number of observations	3,009		
Chi squared	66.16	DF	20
AIC	2,798.568	DF	22
Residual intraclass correlation	0.517		
Pseudo R^2 fixed effects	0.119		
Pseudo R^2 fixed + random effects	0.368		

The age of entry to OOHC had a statistically significant negative association with the probability of a child being in the typical range in verbal development. For each year increase in the age of entry, the probability of being in the typical range decreases by 1.3 percentage points (Figure 6).[37]

Figure 6: The average probability of being in the typical range in verbal cognitive development by age of entry to OOHC



Predominant care placement type was found to be significantly associated with verbal cognitive development. Children in relative/kinship care (Aboriginal) were less likely to be in the typical range compared to children in foster care (on average a 9.3 percentage point decrease). This may reflect the ongoing effects of intergenerational trauma or lower

[37] The estimated average probability of a child being developmentally typical in the verbal cognitive domain is 83% if entering care below the age of 1 year and this reduces to around 60% if the child enters OOHC at the age of 15. The precision of these effects decrease as the age of entry increases due to fewer children entering care at older ages in the sample.

level of support and resources available to these households that have not been captured by the other variables in this analysis. Non-Aboriginal children in relative/ kinship care were more likely to be developmentally typical compared to all children in foster care (on average a 5.5 percentage point increase). This result is supported by existing evidence that children in relative/kinship care have better outcomes than those in foster care. It should be noted this finding may also reflect a selection effect with foster carers taking children that are more developmentally vulnerable.

Carers with high psychological distress had a statistically significant association on verbal development. Children placed with carers who reported very high distress were less likely to be developmentally typical compared to those placed with carers who reported low distress (on average a 16 percentage point decrease). There were no significant differences between the children who had carers who reported low, moderate and high distress in terms of verbal development. In considering children's development outcomes, the issue of causation between carer distress level and developmental outcome is an important aspect to consider as carers distress might be both the cause and response to a child experiencing developmental difficulty.

In regards to child's placement in *districts*, only children in the Murrumbidgee, Far West and Western district group are significantly different to children in the Hunter New England and Central Coast. Children in the Murrumbidgee, Far West and Western District were less likely to be developmentally typical compared to children in Hunter New England (on average 6 percentage point decrease). The cause of this difference is unclear and whether this association is robust will require further study.

The model accounts for only 37% of the variance observed (meaning that 63% of the variance in the model is unexplained). Furthermore, the fixed effects explain only 12% of this total variance observed. This indicates that the random effects capture a key component of verbal development and there are substantial unobserved and unexplained effects that are constant over time.

5.3.3 Non-verbal cognitive development

The results for the non-verbal cognitive development model are presented in Table 9. There were no significant differences in the probability of a child in OOHC being in the typical range in non-verbal development on the basis of their CALD status or age at entry to care. Compared to females, *males* were less likely to be in the typical range in non-verbal cognitive development (on average, a 6 percentage point decrease). Children who identified as *Aboriginal* were also less likely to be developmentally typical compared to non-Aboriginal children (on average, a 4 percentage point decrease).

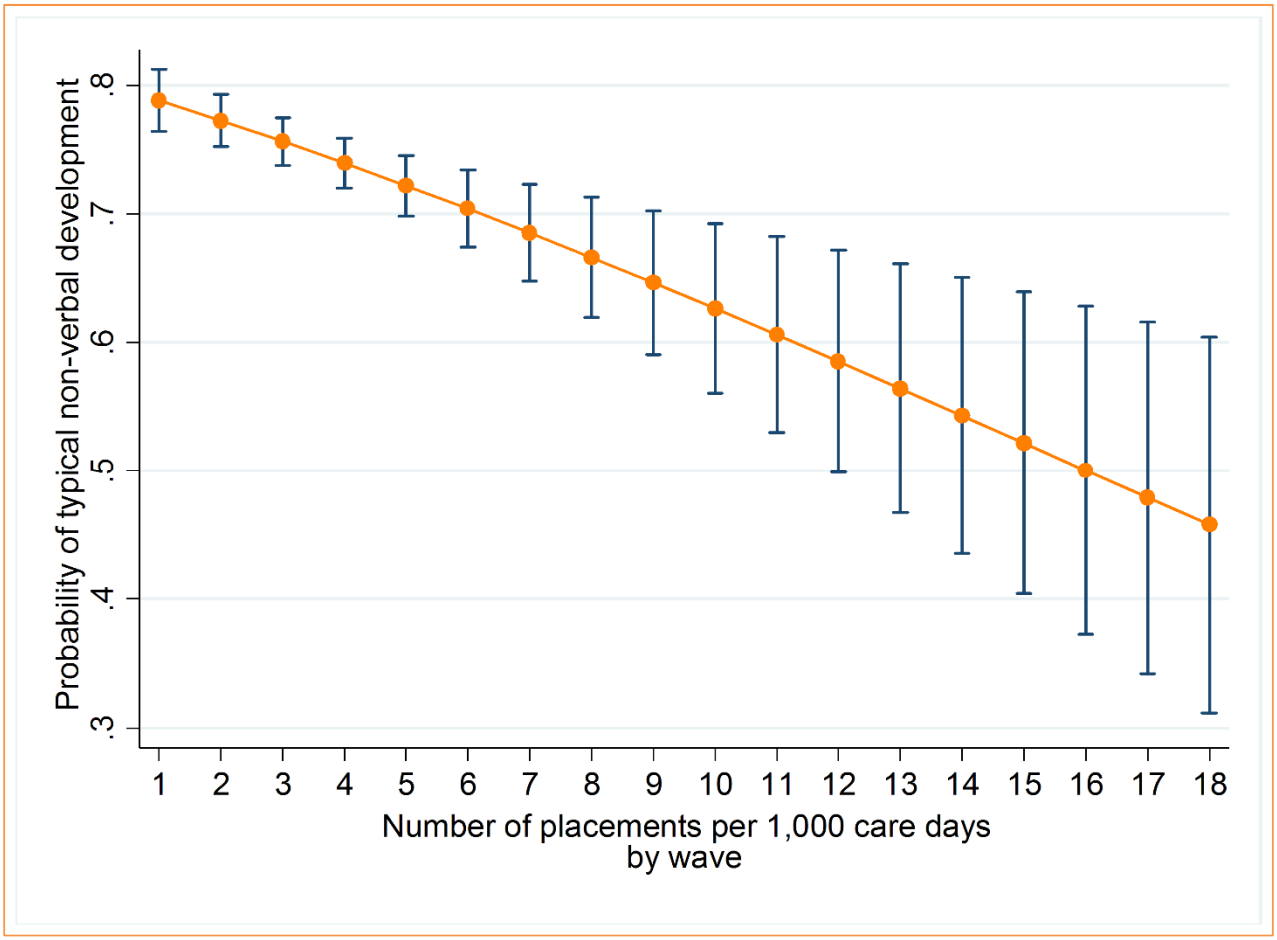
Table 10: Average marginal effects of the binary logit for non-verbal cognitive development

Variable	Average Marginal Effect	Standard Error	P Value
Number of placements per 1,000 care days between waves	**-0.017**	**0.004**	**0.000***
Gender- male (Ref female)	**-0.058**	**0.019**	**0.002***
Aboriginal status - Aboriginal (Ref non-Aboriginal)	**-0.040**	**0.020**	**0.041***
CALD status – CALD (Ref non-CALD)	0.011	0.028	0.705
Age at entry (years)	0.001	0.002	0.839
ROSH report type: (Y/N) (Ref No) Carer drug and alcohol	**0.040**	**0.021**	**0.053**
Carer education (Ref High school)			
University	**0.059**	**0.024**	**0.015***
Other post school qualifications	0.009	0.020	0.634
DCJ District groups (Ref Hunter New England & Central Coast)			
Murrumbidgee, Far West & Western	0.037	0.029	0.206
Illawarra Shoalhaven & Southern	**0.078**	**0.033**	**0.019***
Mid North Coast & Northern NSW	0.022	0.034	0.515
Western Sydney & Nepean Blue Mountains	0.001	0.031	0.972
South Eastern, Northern & Sydney	**0.130**	**0.034**	**0.000***
South Western Sydney	0.003	0.035	0.943
Variance (random intercept)	**2.856**	**0.437**	**0.000***
Time fixed effects – Wave 1			
Wave 2	**0.037**	**0.018**	**0.033***
Wave 3	**0.067**	**0.018**	**0.000***
Statistics			
Number of individuals	1,278		
Number of observations	2,962		
Chi squared	84.05	DF 16	0.000
AIC	3090.99	DF 18	
Residual intraclass correlation	0.465		
Pseudo R^2 fixed effects	0.113		
Pseudo R^2 fixed + random effects	0.336		

Placement stability, controlling for other factors in the model, had a statistically significant association with the probability of a child being in the typical range in non-verbal cognitive development. Figure 7 shows that on average the probability of being in the typical range decreases with the increase of placement numbers (per 1,000 days between waves). Results shows that with one more placement/1,000 care days between waves, the probability of being typical decreases by 1.7 percentage points. For example, children with 1 placement/1,000 care days had an estimated average probability of being in the

typical range of 79% and this decreases to an average of 77.3% for 2 placements/ 1000 care days.[38]

Figure 7: The average probability of being typical in non-verbal cognitive development by the number of placements



With regards to type of harm experienced prior to entering care, children who had *ROSH reports* due to carer drug and alcohol use had a 4 percentage point increase in the

[38] Figure 8 shows that each additional placement results in a reduction in the average probability of being typical. For example, children with 1 placement/1,000 care days had an estimated average probability of being in the typical range of 79% and for children with 18 placements/1,000 care days, the average probability of being in the typical range reduces to 46%. It should be noted that as the number of placements increase the confidence intervals become quite large due to fewer children with large numbers of placements. Taking a conservative approach using the lower bound of 1 placement (76.4%) and upper bound of 18 placements (60.4%), results in a 16 percentage point reduction in the probability of being in the typical range.

probability of being in the typical range in non-verbal cognitive development compared to those who were not reported for their carer's drug and alcohol use. The result indicates there is a subgroup of children that have a report for carer drug alcohol use but do not have other types of ROSH reports that may have a greater/negative impact on development when compared to other children in OOHC.

Children who had *carers with university education* were significantly more likely to be developmentally typical compared to children whose carers had completed high school only (on average, a 5.9 percentage point increase).

In relation to placement in *districts,* children in two district groups were significantly different to children in the Hunter New England & Central Coast District. Children in Illawarra Shoalhaven & Southern NSW and South Eastern, Northern & Sydney were more likely to be developmentally typical compared to Hunter New England and Central Coast (on average, 7.8 and 1.3 percentage point increases respectively). The cause of this difference is unclear and whether this association is robust will require further study.

In terms of the *fixed effects for Wave (i.e., time),* on average children in Waves 2 and 3 were more likely to be in the typical range in non-verbal development compared to Wave 1 (on average, 3.7 and 6.7 percentage point increases respectively). This indicates that children have improved in non-verbal development over time.

The model explains 33.6% of the variance observed (i.e. 66.4% of the variance is unexplained), with the variables of fixed effects explaining 11.3% of the total variance observed. About a fifth of the variance (22.3%) is explained by the time invariant factors which were not measured but believed to have an influence on a child being typical in non-verbal cognitive development. This is a moderate[39] fit similar to that of verbal cognitive development.

5.3.4 Physical health: Fine motor skill development

The results for the Fine motor skill model are reported Table 10. There were no significant differences in the probability of a child in OOHC being in the typical range in fine motor skill development on the basis of their Aboriginality, CALD status or age at entry to care. Compared to females, *males* were less likely to be in the typical range in fine motor skill development (on average, an 11.4 percentage point decrease).

[39] The effect size guidelines determined by a review of the literature consider a R^2 below 0.04 (4%) as too small to be practically significant, 0.25 (25%) to be a moderate effect and 0.64 (64%) to be a large effect Feguson (2009).

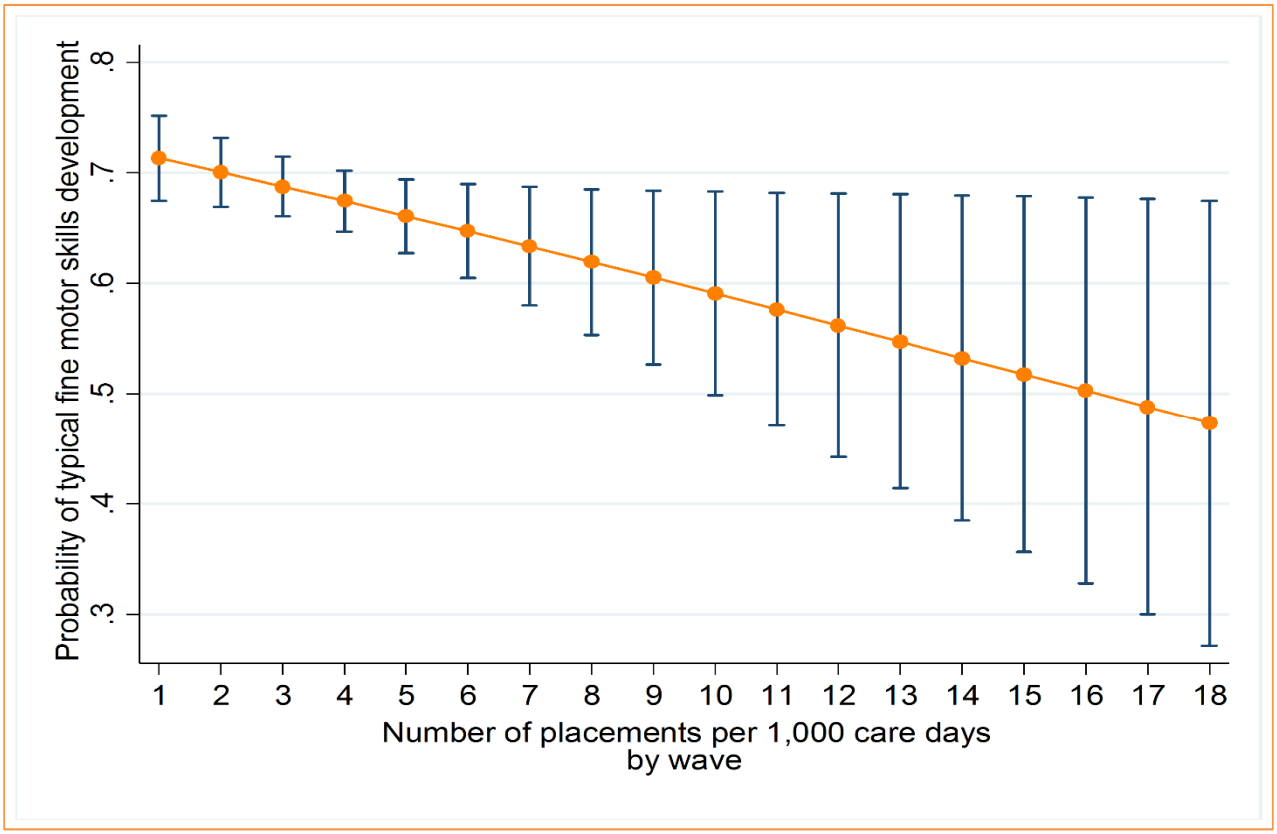
Table 11: Average marginal effects of the binary logit for fine motor skill development

Variable	Average Marginal Effect	Standard Error	P Value
Number of placements per 1,000 care days between waves	**-0.013**	**0.006**	**0.033***
Gender - male (Ref female)	**-0.114**	**0.027**	**0.000***
Aboriginal status - Aboriginal (Ref non-Aboriginal)	-0.025	0.029	0.385
CALD status - CALD (Ref non-CALD)	-0.006	0.039	0.882
Age at entry to OOHC (years)	0.008	0.016	0.588
ROSH report type: (Y/N) (Ref No) domestic violence	**0.067**	**0.029**	**0.022***
ROSH report type: (Y/N) (Ref No) carer drug and alcohol	**0.072**	**0.029**	**0.014***
Carer financial status (Ref <40k)			
40k to <80k	**-0.073**	**0.033**	**0.027***
80k plus	-0.017	0.033	0.613
Carer age (Ref <=40 years)			
41–50 years	-0.003	0.032	0.908
51–60years	-0.024	0.038	0.517
>=61 years	**0.140**	**0.046**	**0.002***
Social Cohesion and Trust Scale	**-0.012**	**0.004**	**0.007***
DCJ District groups (Ref: Hunter New England & Central Coast)			
Murrumbidgee, Far West & Western NSW	**0.119**	**0.043**	**0.006***
Illawarra Shoalhaven & Southern NSW	**0.122**	**0.049**	**0.013***
Mid North Coast & Northern	0.074	0.048	0.129
Western Sydney & Nepean Blue Mountains	0.072	0.044	0.107
South Eastern, Northern & Sydney	0.043	0.053	0.416
South Western Sydney	0.080	0.048	0.094
Wave (Ref Wave 1)			
Wave 2	0.018	0.028	0.538
Wave 3	**0.074**	**0.031**	**0.017***
Variance (random intercept)	**1.76**	**0.455**	**0.000***
Number of observations	1,444		
Number of individuals	734		
Chi squared	**69.35**	**df= 21**	**0.000***
AIC	1704.74	df = 23	
Residual intraclass correlation	0.350		
Pseudo R^2 fixed effects	0.155		
Pseudo R^2 fixed + random effects	0.280		

Placement stability, controlling for other factors in the model, had a statistically significant association with the probability of a child being in the typical range in fine motor skill development. Figure 8 shows that on average the probability of being in the typical range decreases with the increase of placement numbers (per 1,000 days between waves). Results shows that with one more placement/1,000 care days between waves, the probability of being typical decreases by 1.3 percentage points. For example, children

with 1 placement /1000 care days had an estimated average probability of being typical of 71% and this decreases to an average of 69.7% for 2 placements/1,000 care days.[40]

Figure 8: The average probability of being typical in fine motor development by number of placements per thousand care days.



With regards to type of harm experienced prior to entering care, children who had *ROSH reports* due to carer drug and alcohol use had a 7.1 percentage point increase in the probability of being in the typical range in fine motor skill development compared to those who were not reported for carer drug and alcohol use. The result indicates there is a subgroup of children that have a report for carer drug alcohol use but do not have other types of ROSH reports that may have a greater/negative impact on development when compared to other children in OOHC. Children with ROSH reports regarding domestic violence had a 6.7 percentage point difference in the probability of being in the typical range compared to children who were not reported for domestic violence.

[40] Figure 9 shows that each additional placement results in a reduction in the average probability of being typical. For example, with 18 placements/ 1000 care days, the average probability of being typical is 47%.

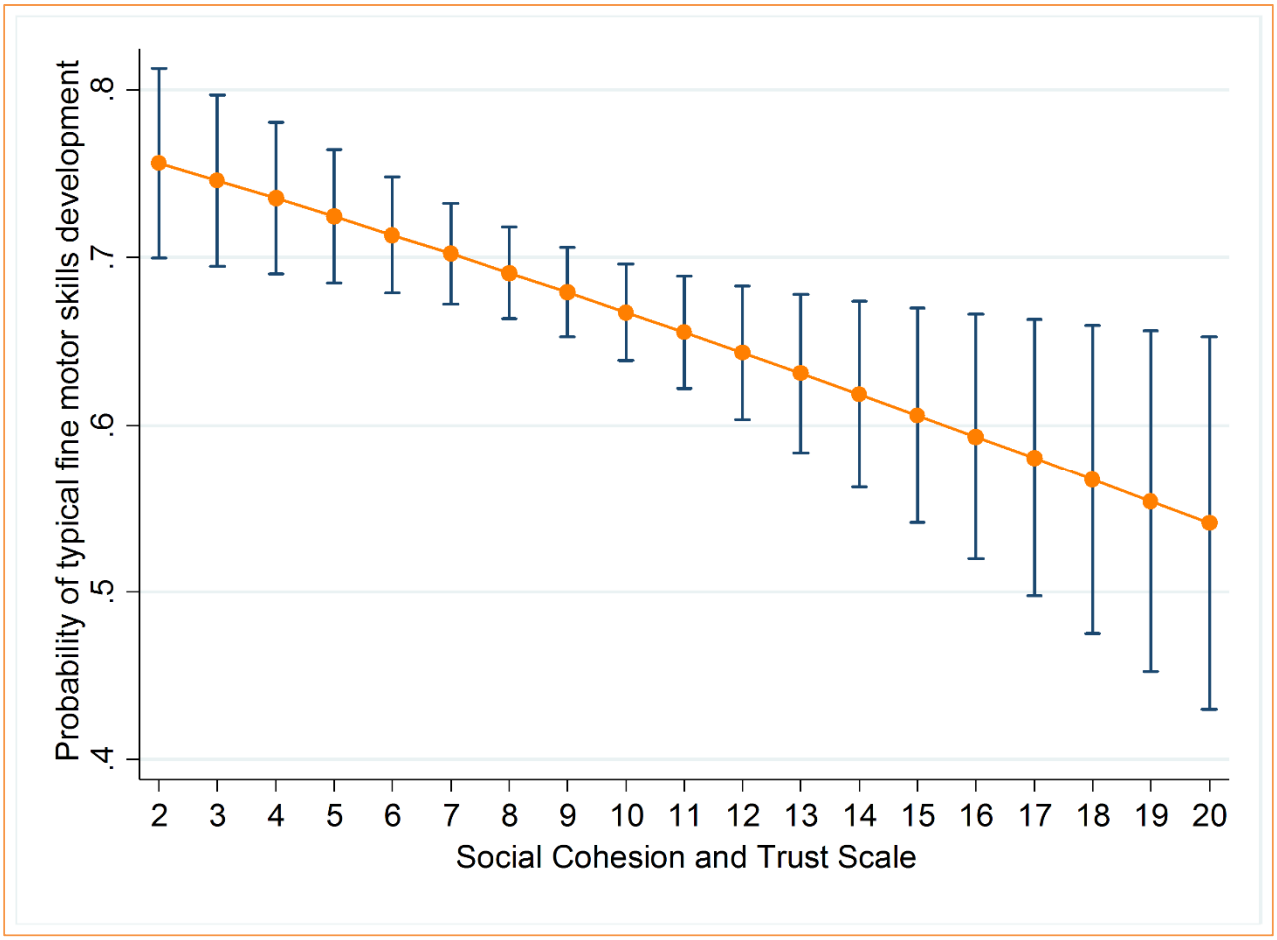
The *financial status of carer* was found to have a statistically significant association with fine motor skill development. Children placed with carers that reported an income of $40,000 to $80,000 were less likely to be in the typical range on fine motor skill development compared to children placed with carers that earned less than $40,000 (on average, a 7.2 percentage point decrease). This may reflect that households with more resources opt to care for children with greater developmental issues or it could be that as the carer's financial status improves they are not eligible for programs and supports which influence development.

Children placed with *carers aged* over 60 years were more likely to be in the typical range in fine motor skill development compared to children placed with carers who were less than 40 years (on average, a 13.9 percentage point increase). This may reflect the greater experience of older carers in caring for children. Another possibility is that carers' age is a proxy for more established households with more assets and resources to assist a child's development. This is separate to income and known as wealth.

Social cohesion as measured by the Social Cohesion and Trust Scale[41] was also found to have a significant association with fine motor skill development. The probability of being developmentally typical in fine motor skill decreases by 1.1 percentage points for each additional unit in the scale. Figure 9 shows the average probability of being developmentally typical is 75% for children placed in a neighbourhood with high social cohesiveness (a low score of 2) and this decreases to 54% for children placed in a neighbourhood with high social incohesiveness (a score of 20). It should be noted that the confidence intervals are large for higher scores due to the few carers having high scores.

[41] The Social Cohesion and Trust Scale measures the carers perceived safety and unity of a neighbourhood with higher values indicating less cohesion.

Figure 9: The average probability of being typical in Fine motor development by social cohesion and trust scale



After controlling for variables in the model, children in two *district groups* (Murrumbidgee, Far West and Western NSW, and the Illawarra, Shoalhaven and Southern NSW) were significantly more likely to be developmentally typical compared to children in Hunter New England and the Central Coast (on average, 11.9 and 12.2 percentage point increases respectively). The cause of this difference is unclear and whether this association is robust will require further study.

In terms of the *fixed effects for Wave (i.e. time)*, children in Wave 3 were more likely to be developmentally typical compared to children in Wave 1 (on average, a 7.4 percentage point increase). This suggests that there is some improvement in fine motor skills between Wave 1 and Wave 3.

The model accounts for 28.0% of the variance observed (i.e. 72% of the variance is unexplained), with the variables of fixed effects accounting for 15.5% of the total variance observed. About a tenth of the variance (12.5%) is captured by the time invariant factors which were not measured but believed to have had an influence on a child being typical in fine motor skill development.

5.3.5 Physical health: Gross motor skill development

The results of the model on gross motor skills are reported in Table 11.

There were no significant differences in the probability of a child in OOHC being in the typical range in gross motor skill development on the basis of their Aboriginality, CALD status or age at entry to OOHC. Compared to females, *males* were less likely to be developmentally typical in gross motor skills (on average, a 4.5 percentage point decrease).

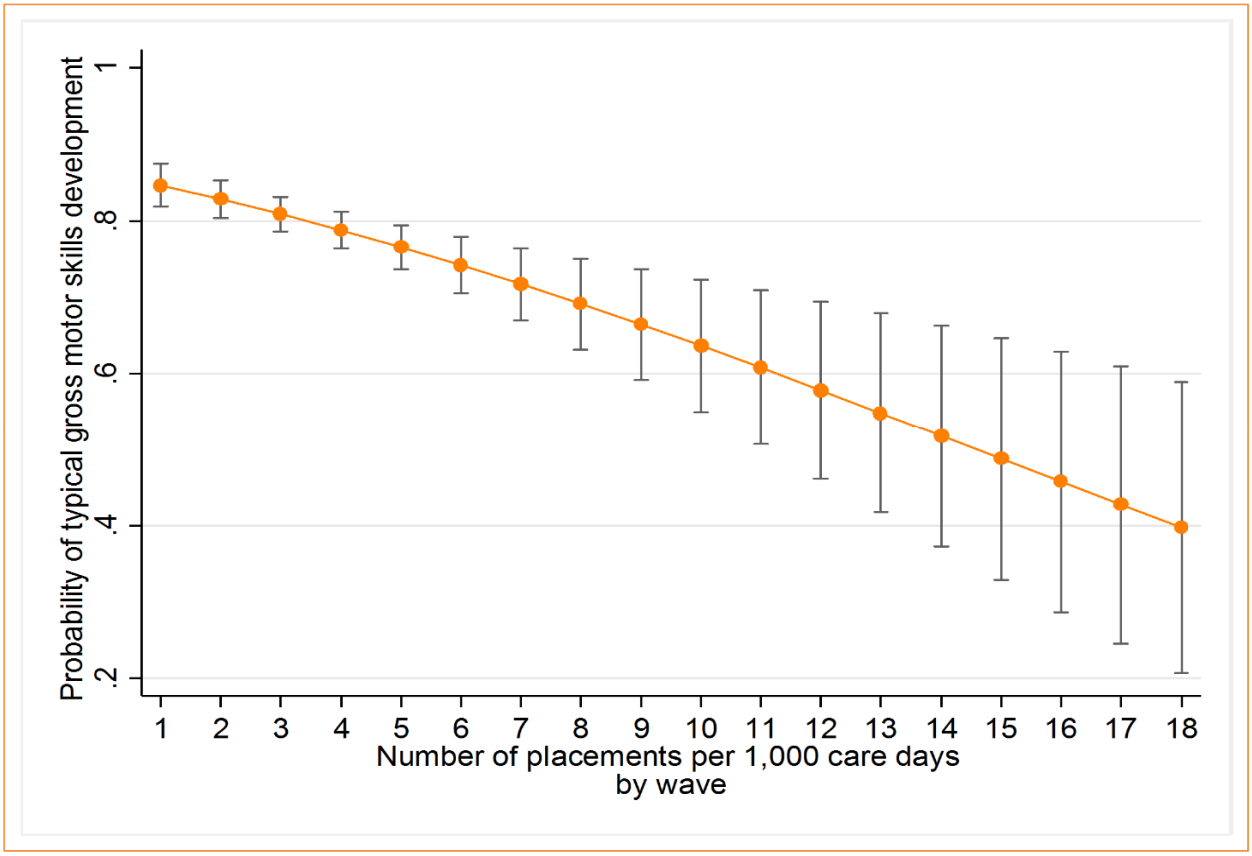
Table 12: Average marginal effects of the binary logit for gross motor skills development

Variable	Average Marginal Effect	Standard Error	P Value
Number of placements per 1,000 care days between waves	**-0.021**	**0.005**	**0.000***
Gender - male (Ref female)	**-0.045**	**0.023**	**0.049***
Aboriginal status- Aboriginal (Ref non-Aboriginal)	-0.016	0.024	0.517
CALD status- CALD (Ref non-CALD)	-0.013	0.034	0.707
Age at entry to OOHC (years)	-0.001	0.012	0.910
ROSH Report type: (Y/N) (Ref No) carer drug and alcohol abuse	**0.103**	**0.025**	**0.000***
Social Cohesion and Trust Scale	**-0.008**	**0.003**	**0.025***
DCJ District groups (Ref Hunter New England and Central Coast)			
Murrumbidgee, Far West & Western NSW	0.063	0.037	0.090
Illawarra Shoalhaven & Southern NSW	**0.117**	**0.040**	**0.003***
Mid North Coast & Northern	0.071	0.042	0.087
Western Sydney & Nepean Blue Mountains	0.049	0.038	0.202
South Eastern, Northern & Sydney	**0.094**	**0.042**	**0.025***
South Western Sydney	0.056	0.041	0.171
Wave (Ref Wave 1)			
Wave 2	**0.062**	**0.021**	**0.004***
Wave 3	**0.080**	**0.023**	**0.001***
Variance (random intercept)	**4.196**	**1.000**	**0.000**
Number of observations	1615		
Number of individuals	775		
Chi squared	**74.48**	**DF 15**	**0.000***
AIC	1458.84	DF 17	
Residual intraclass correlation	0.560		
Pseudo R^2 fixed effects	0.232		
Pseudo R^2 fixed + random effects	0.456		

Placement stability, controlling for other factors in the model, had a significant association with the probability of a child being in the typical range in gross motor skill development. Figure 10 shows that, on average, the probability of being in the typical range decreases by 2.1% percentage points with each additional placement/1,000 care days between waves. For example, children with 1 placement /1,000 care days had an estimated average probability of being in the typical range of 85% and this decreases to an average of 82.9% for 2 placements/1,000 care days.[42] The associations are cumulative (Figure 10).

[42] Figure 11 shows that each additional placement results in a reduction in the average probability of being typical. For example, children with 1 placement/1,000 care days had an estimated average probability of being in the typical range of 85% and for children with 18 placements/1,000 care days, the average probability of being in the typical range reduces to 40%. It should be noted that as the number of placements increase the confidence intervals become quite large due to fewer children with large numbers of placements. Taking a conservative approach using the lower bound of 1 placement (81.8%) and upper bound of 18 placements (58.9%), results in a 22.9 percentage point reduction in the probability of being in the typical range.

Figure 10: The average probability of being typical in Gross motor development by number of placements per thousand care days

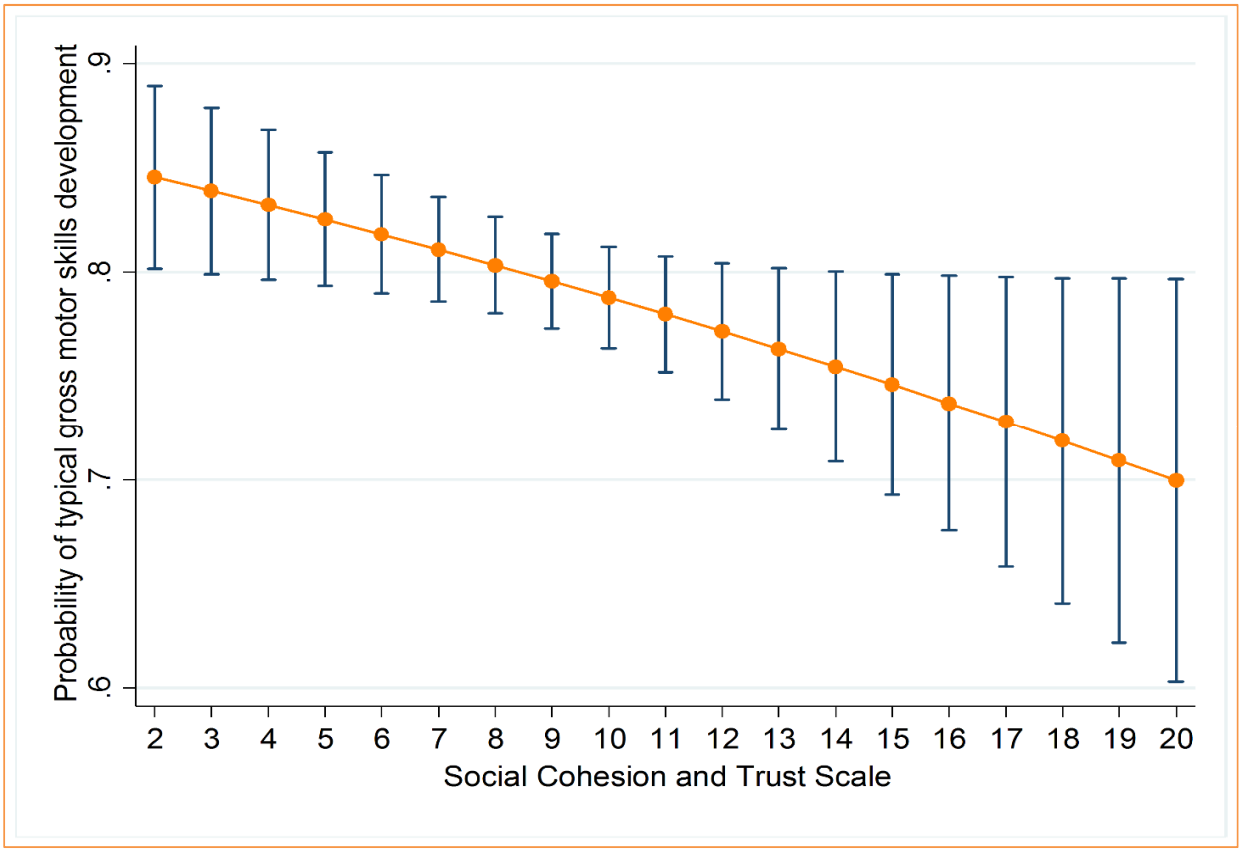


With regards to type of harm experienced prior to entering care, children who had *ROSH reports* due to their carers' drug and alcohol use had a 10 percentage point increase in the probability of being in the typical range in gross motor skill development compared to children who did have a report for carer drug and alcohol use. It is important to note that this positive association is not due to any beneficial effect of this type of ROSH report. The result indicates there is a subgroup of children that have a report for carer drug alcohol use but do not have other types of ROSH reports that may have a greater/negative impact on development when compared to other children in OOHC.

Social cohesion was found to have a significant association with gross motor skill development. The probability of being developmentally typical in gross motor skill decreases by 0.7 percentage points for each additional unit of incohesion. Figure 11 shows the average probability of being developmentally typical is 85% for children placed in a neighbourhood with high social cohesiveness (a low score of 2) and this decreases to 70% for children placed in a neighbourhood with high social incohesiveness (a score of 20). It should be noted that the confidence intervals are large for higher scores due to the fewer carers scoring. This is similar to the finding regarding fine motor skills, and may

reflect children with carers reporting a greater perceived safe neighbourhood facilitating child play that is beneficial to gross motor skill development.

Figure 11: The average probability of being typical in gross motor development by social cohesion and trust scale



In regards to placement in districts, children in two district groups were significantly different to children in the Hunter New England & Central Coast District. Children in the Illawarra Shoalhaven & Southern NSW and South Eastern, Northern & Sydney districts were more likely to be developmentally typical compared to children in Hunter New England and Central Coast (on average, 11.7 and 9.4 percentage point increases respectively). The cause of this difference is unclear and whether this association is robust will require further study.

In terms of the fixed effects for Wave (i.e., time), on an average children in Wave 2 and 3 were more likely to be in the typical range in gross motor development compared to Wave 1 (on average, 6.2 and 8.0 percentage point increases). This indicates that children have improved in gross motor skills development over time.

The model explains 45.6% of the variance observed, with the variables of fixed effects explaining 23.2% of the total variance observed. About a fifth of the variance (22.4%) is

explained by the time invariant factors which were not measured but believed to have had an influence on a child being typical in gross motor skill development.

5.3.6 Results of model effect size

This section discusses the effect size of the models for the five developmental domains. Table 12 presents the fixed effect component of the final model and a model without the placement stability variable and the difference between the two.[43]

The results show that model fit ranged from 11.3% for non-verbal development to 44.6% for socio-emotional development (Column A). The models without the placement stability variable, had a slight reduction in the goodness-of-fit (Column B). Socio-emotional still had the best model fit (43.7%) and non-verbal the lowest (9.4%). There was a range in the reduction of total variation explained from 0.62 percentage points for verbal cognitive to 4.84 percentage points for gross motor (Column C). Placement stability explains between 1.9% (socio-emotional) and 20.9% (gross motor) of model fit (Column D).

Table 13: The effect size[44] of placement stability

Model	Proportion of variance explained by final model R^2 (A)	Final model without Placement stability variable R^2 (B)	Difference in R^2 A B (C)	Proportion of variance explained by placement stability (C/A)
Socio-emotional	44.6	43.7	0.9	1.9
Verbal cognitive	11.9	11.3	0.6	5.2
Non-verbal cognitive	11.3	9.4	1.9	17.0
Fine motor	15.5	14.6	0.9	5.9
Gross motor	23.2	18.4	4.8	20.6

Note: R^2 rescaled by multiplying it by 100.

[43] McKelvey & Zavoina Pseduo R^2.

[44] The effect size guidelines determined by a review of the literature consider a R^2 below 0.04 (4%) as too small to be practically significant, 0.25 (25%) to be a moderate effect and 0.64 (64%) to be a large effect Feguson (2009).

6 Discussion

6.1 Summary of results

This study examined the association of placement stability with development of children in OOHC. Placement stability, while controlling for a number of other factors, was found to have a significant association with socio-emotional, non-verbal, gross motor and fine motor skill development but not on verbal development. Each placement/1,000 care days reduced the estimated probability of being developmentally typical by 1–2% across all domains (except verbal). It is not possible to determine whether a child who experiences placement instability is less likely to be in the typical range for development or whether placement instability is due to the child's experience of developmental problems. The analysis did however utilise a measure for placement stability that considered duration of time in care, the child's recent experience of stability and controlled for a number of child, carer and placement characteristics that have been found to be related to children's development in OOHC.

In terms of child characteristics, there were mixed results for the impact of different demographic characteristics by developmental domain. While gender did not significantly impact socio-emotional or verbal development, males were found to be significantly less likely to be in the typical range in non-verbal, fine and gross motor skills development. These findings are consistent with previous literature that indicate gender is a weak factor in predicting or influencing developmental outcomes (Walsh et al 2018). The Aboriginal or CALD status of the child was not found to be significantly associated with developmental outcomes except for non-verbal development where Aboriginal children were less likely to be developmentally typical by an average 4% compared to non-Aboriginal children.

Age at entry to OOHC had significant associations with socio-emotional and verbal cognitive development. Results showed that children who entered OOHC at an older age were less likely to be developmentally typical compared to children who entered care early. This is consistent with previous literature. A systematic review found mixed results on the association between the age of entry to OOHC and outcomes but concluded that overall older children placed in care are more likely to have lower well-being than children placed at a younger age (Pritchett et al 2013). The influence of age of entry to OOHC on development may be partially explained by the age of children at the time of interview. The age of entry to OOHC and the age at interview are highly correlated in the POCLS sample and therefore only one of these variables (age of entry) was included in the

models reported45. It is not possible to separate these associations as this analysis only includes three waves of data and the POCLS sample largely consists of children who entered OOHC before the age of 3 years. With more waves of data we will be able to observe development outcomes of these children at older ages to confirm the association. [46] However, it is important to separate these associations as there is evidence from the field of criminology that criminality, arguably a negative consequence of atypical socio-emotional development, increases with age until the age of 19, at which point it either decreases or persists (Moffitt 2018; Odgers et al, 2008). Similarly, other research has identified that cognitive skills including vocabulary are expected to increase over time (Casey et al., 2005). These results may have important policy implications as children who entered OOHC at a later age may benefit from additional support.

Children in the POCLS had been reported for different types of trauma before entering OOHC. For example, 71% of the sample analysed have one or more ROSH reports involving physical abuse and 69% have one or more ROSH reports involving neglect. This analysis found that only a few reported issues (psychological harm, domestic violence, and carer drug and alcohol abuse) were significantly associated with developmental outcomes and the association varied by developmental domain. Children who had ROSH reports involving psychological harm were less likely to be in the typical range in socio-emotional development compared to those who were not reported for psychological harm. This result suggests that appropriate intervention may be required for children reported for psychological harm to improve their socio-emotional developmental outcomes.

Significant positive associations were found for children reported for carer drug and alcohol use on non-verbal, fine and gross motor skills development. These children were more likely to be in the typical range in these domains compared to children who did not have these types of reports. A similar result was also found for reports of domestic violence on fine motor skill development. The positive association of a particular type of ROSH report on development should be interpreted with caution and not be considered as a protective factor (e.g. reported carer drug and alcohol abuse improves non-verbal

[45] As noted in the methods section models using age at interview were also conducted with similar parameter estimates.

[46] In order to examine this issue in more depth, models using both age at interview and age at OOHC entry were constructed and are reported in the Appendix. These models report similar odds ratios for all parameters. This provides some evidence that with the current POCLS sample, the same effects are equally attributable to ageing effects and age of OOHC entry effects.

skills). Instead, it may be explained by the lack of other types of ROSH reports that may have a greater negative impact on development. Additional research is required to validate these results.

Placement type had a significant influence on socio-emotional and verbal development. Children in relative/kinship care (non-Aboriginal) were more likely to be in the typical range on those two domains compared to children placed in foster care. These findings are consistent with evidence from a systematic review indicating that children in relative/kinship care had better outcomes regarding behavioural problems, adaptive behaviours and well-being than children in foster care (Winokur 2014). This finding supports placement principles policies that prioritise placements with relative/kin where appropriate.47

In regards to DCJ district, children in Illawarra Shoalhaven & Southern NSW consistently emerged as more likely to be in the typical range on non-verbal, fine motor skills and gross motor skills development compared to children in the Hunter New England and Central Coast. However, the reason for this difference is unclear and requires further investigation to validate the robustness of this difference.

In terms of carer characteristics, carers attributes were a significant factor for all types of development although different carers attributes influence different outcomes. Carer age had a significant association with socio-emotional and gross motor skill development. Children placed with older carers (over 60 years) were more likely to have typical development compared to children placed with younger carers (less than 40 years). This may be due to older carers having more experience and resources to care of children. Children placed with carers with university education were more likely to be in the typical range on non-verbal development than children placed with carers with high school education only. Carer income had a significant negative association with fine motor development. This may reflect that households with more resources opt to care for children with greater developmental issues or it could be that as carers financial status improves they are not eligible for programs and supports which influence development.

Carer distress is significantly associated with socio-emotional and verbal development. It may be that carer distress negatively affects a child's socio-emotional and verbal development and it is also possible that carers who have children with lower socio-emotional and verbal outcomes report greater levels of distress. Carers stress should be monitored and when carers are identified as being distressed, they should be provided

[47] This study did not consider adherence to the Aboriginal and Torres Strait Islander Placement Principle (ATSICPP). This is beyond the scope of this study but an important area that requires further examination.

with appropriate support. Ongoing support for carers is crucial to prevent burn-out and loss of carers (Walsh 2018) and this analysis also highlights the impact of carer stress on the child's development.

Carer satisfaction was also associated with socio-emotional development. Specifically if carers reported being satisfied with the working relationship with other agencies, then the children in their care were more likely to be developmentally typical. Similarly children placed with carers who were satisfied that they had enough information about the child were more likely to be in the typical range in socio-emotional development. It is possible that carers of children who were developmentally typical were more likely to be satisfied with the services made available. 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 trusted 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.

Model fits

Despite the moderate fit (see Appendix 8.1), a number of variables had sizeable estimated associations with the probability of being in the typical range. If these results are consistent in further waves of the POCLS, these findings have the potential to inform practice, policy and programs to improve developmental trajectories of children. It should be noted that a similar and substantial proportion of each model (around 20% in all models but fine motor skills at 12.5%) was explained by a random effect term. This represents the unobserved heterogeneity reflecting individual differences that were not measured or included in the model.

6.2 Implications for policy and practice

This study, for the first time in NSW, provides the opportunity, using large-scale longitudinal data, to examine the association between placement stability and the developmental outcomes of children in OOHC. The study provides evidence that placement stability influences developmental outcomes for children in OOHC thus supporting PCI's focus on placement stability to improve outcomes for children in OOHC.

The association between placement stability and improving developmental outcomes is small and a range of other factors including carer characteristics are also important for children's development. In particular, policies and programs that provide support to carers may contribute to improvement in children's development outcomes. Carer distress was found to significantly impact the socio-emotional and verbal development.

Carer satisfaction with working relationships with other agencies and having sufficient information about the child in their care also influenced development.

The study findings suggest that placement with skilled, experienced, knowledgeable and well supported carers is important for development for children in OOHC.

6.3 Limitations

This report provides interesting insights into the development of children in OOHC but a number of limitations need to be considered. Firstly, this study aimed to examine the impact of placement stability on developmental outcomes of children in OOHC. It was not possible to separate whether development outcome was a cause or consequence of placement stability. Methods that address this issue of reverse causation should be investigated.

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

Thirdly, there are limitations to the measures used. The derived placement stability measure 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 is required and additional information on quality, timing and the reasons for placement changes are likely to be important elements of the concept of placement stability. Approaches that include empirically determined cut-off points for high, moderate and low numbers of placements can also be considered. It was beyond the scope of this study to examine at what point (i.e. number of placements) results in a significant impact on development. This is an important research focus that would assist in appropriate policy intervention.

The development measures used in this analysis are binary indicators constructed from multiple measures. This allowed us to include responses from children of different ages to maximise the number of observations. However, the use of a binary variable may have resulted in a loss of information which could affect the estimates of the models. Future research may focus on improving measures of development by constructing harmonised interval measures. Alternative approaches to modelling development including latent trajectory modelling could be considered.

Finally, although a number of factors that may influence developmental outcome were controlled for in the analysis, this study has not included key protective factors such as sibling placements, birth family contact and child disability.

5.4 Conclusion

This paper provides some evidence that placement stability significantly influences developmental outcomes for children in OOHC. This finding from the POCLS data provides evidence to support the current policy initiative to improve children's outcomes in OOHC by focussing on placement stability. A range of other factors were found to be associated with children's development and require policy focus.

7 References

Rabe-Hesketh, S., & Skrondal, A.,(2008). *Multilevel and longitudinal modeling using stata.* College Station, Tex, Stata Press Publication.

Aarons, G.A., James S., Monn A.R., Raghavan R., Wells R.S., & Leslie L.K. (2010). Behavior problems and placement change in a national child welfare sample: A prospective study. *Journal of the American Academy of Child and Adolescent Psychiatry.* 49(1):70–80.

Akaike, H. (1974). A new look at the statistical model identification. *IEEE Transactions on Automatic Control*, 19 (6): 716–723.

Barth R.P., Lloyd E.C., Green R.L., James S., Leslie L.K., & Landsverk J. Predictors of placement moves among children with and without emotional and behavioral disorders. *Journal of Emotional and Behavioral Disorders*. 2007;15(1):46–55.

Berger, L. M, Bruch, S. K., James, S., Johnson E. I., & Rubin D. (2009). Estimating the "Impact" of Out-of-Home Placement on Child Wellbeing: Approaching the Problem of Selection Bias. *Child Development,* 80(6), 1856-1876.

Berger, L. M., Cancian, M., Han, E., Noyes, J., & Rios-Salas, V. (2015). Children's academic achievement and foster care. *Pediatrics*, 135(1), e109–e116.

Berry, M., & Barth, R. P. (1990). A study of disrupted adoptive placements of adolescents. *Child Welfare,* 69, 209–225.

Cameron, A. C. and Trivedi, P. K. (2005) *Microeconometrics: Methods and Applications*. Cambridge: Cambridge University Press.

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, 1478-85.

Carnochan S., Moore M., & Austin M.J. (2013). Achieving Placement Stability, *Journal of Evidence-Based Social Work*, 10:3, 235-253.

Clemensa, E.V., Klopfensteinb, K., Trent L., Lalondea 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, Pages 86-94

Chu A.T., Lieberman AF (2010). Clinical implications of traumatic stress from birth to age five. Annual Review of Clinical Psychology 2010, 6:469–494.

Cunha, F., & Heckman J.J, (2009).The Economics and Psychology of Inequality and Human Development, *Journal of the European Economic Association*, 7(2-3), 320–364.

Currie, J., & Spatz Widom, C. (2010). Long-term consequences of child abuse and neglect on adult on wellbeing. *Child Maltreatment, 15*(2),111—120.

Eggertsen, L. (2008). Primary factors related to multiple placements for children in out-of-home care. *Child Welfare, 87*(6) ,71–90.

Fan, X., &. Konold, T.R (2010). *Statistical significance versus effect size*, Editor(s): Penelope Peterson, Eva Baker, Barry McGaw, International Encyclopedia of Education (Third Edition), Elsevier, p. 444—450)

Fawley-King, K., Trask, E., Zhang, J., & Aarons, G. (2017). The impact of changing neighborhoods, switching schools, and experiencing relationship disruption on children's adjustment to a new placement in foster care. *Child Abuse & Neglect*, 63, 141–150.

Ferguson, C. J. (2009). An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice*, 40(5), 532–538.

Fernandez, E. (2009) Children's wellbeing in care: Evidence from a longitudinal study of outcomes. *Children and Youth Services Review* 31, 1092–1100.

Ford, E., Anda, R., Edwards, V., Perry, G., Zhao, Li C., & Croft J. (2011), 'Adverse childhood experiences and smoking status in five states', *Preventive Medicine*, 53(3), 188-93.

Fry,C.E., Langley K., & Shelton, K.H. (2017) A systematic review of cognitive functioning among young people who have experienced homelessness, foster care, or poverty, *Child Neuropsychology,* 23:8, 907-934.

Goemans, A., Van Geel, M., & Vedder, P. (2015). Over three decades of longitudinal research on the development of foster children: A meta-analysis. *Child Abuse & Neglect*, 42, 121–134.

Gypen, L., Vanderfaeillie, J., De Maeyer, S., Belenger, L., & Van Holen, F. (2017). Outcomes of children who grew up in foster care: Systematic review. *Children and Youth Services Review*, 76, 74-83.

Harden, B. J., Clyman, R. B., Kriebel, D. K., & Lyons, M. E. (2004). Kith and kin care: Parental attitudes and resources of foster and relative caregivers. *Children and Youth Services Review*, 26, 657-671.

Heckman, J.J. "Sample Selection Bias as a Specification Error." *Econometrica* 47, no. 1 (1979): 153-61.

Heckman, J.J., Stixrud, J., & Urzua, S. (2006). The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior. *Journal of Labor Economics, 24*(3), 411-482.

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', *Lancet Public Health,* 2, e356-66.

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.

Jordan, B., Tseng, Y.P., Coombs, N., Kennedy A., & Borland, J. (2014). Improving lifetime trajectories for vulnerable young children and families living with significant stress and social disadvantage: the early years education program randomised controlled. *BMC Public Health*, 14:965.

Konijn, C., Admiraal, S., Baart, J., van Rooij, F., Stams, GJ., Colonnesi, 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 10.13140/RG.2.2.17570.32966.

Lum, J. A. G., Powell, M., & Snow, P. C. (2018). The influence of maltreatment history and out-of-home-care on children's language and social skills. *Child Abuse &*

Neglect, 76, 65–74.

Maclean, M. J., Sims, S., O'Donnell, M., & Gilbert, R. (2016). Out-of-Home Care versus In-home Care for Children Who Have Been Maltreated: A Systematic Review of Health and Wellbeing Outcomes. *Child Abuse Review*, 25: 251–272.

McCrory E, DeBrito S.A., & Viding E. (2010). Research review: the neurobiology and genetics of maltreatment and adversity. *Journal of Child Psychology and Psychiatry,* 51(10):1079–1095

Mehana, M., & Reynolds, A. J. (2004). School mobility and achievement: A meta-analysis. *Children and Youth Services Review, 26*(1), 93–119.

Moore, T. D., McDonald, T. P., & Cronbaugh-Auld, K. (2016). Assessing risk of placement instability to aid foster care placement decision making. Journal of Public Child Welfare, 10(2), 117–131.

McDowall, J. (2013). *Experiencing Out-of-Home Care in Australia. The Views of Children and Young People*. CREATE Report Card 2013. Sydney: CREATE Foundation.

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.A.(2000). Children and youth in foster care: Disentangling the relationship between problem behaviors and number of placements. *Child Abuse & Neglect* ; *24*(10), 1363–1374.

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.

Pardeck, J. T. (1984). Multiple placement of children in foster family care: An empirical analysis. *Social Work, 29*(6), 506–509.

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.

Perry, B. (2002). Childhood Experience and the Expression of Genetic Potential: What Childhood Neglect Tells Us About Nature and Nurture. *Brain Mind*, 3:79–100. 8.

Redding, R. E., Fried, C., & Britner, P. A. (2000). Predictors of placement outcomes in treatment foster care: Implications for foster parent selection and service delivery. *Journal of Child and Family Studies, 9,* 425–447.

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.

Rothman, E.F., E.M. Edwards, T. Heeren., & R.W. Hingson. (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

Ryan, J. P., Garnier, P., Zyphur, M., & Zhai, F. (2006). Investigating the effects of caseworker characteristics in child welfare. *Children and Youth Services Review, 28,* 993–1006.

Smith, D. K., Stormshak, E., Chamberlain, P., & Whaley, R. B. (2001). Placement disruption in treatment foster care. *Journal of Emotional & Behavioural Disorders, 9* (3) 2000.

Smith, S., Liu, T., Davies, L. C., Boykin, E. L., Adler, M. C., Harris, J. M., et al. (2009). Risk factors in child maltreatment: A meta-analysis review of literature. *Aggression and Violent Behavior, 14,* 13–29.

Stacks, A. M., Beeghly, M., Partridge, T., & Dexter, C. (2011). Effects of placement type on the language developmental trajectories of maltreated children from infancy to early childhood. *Child Maltreatment,* 16(4), 287–299.

Stahmer, A. C., Hurlburt, M., Horwitz, S. M., Landsverk, J., Zhang, J., & Leslie, L. K. (2009). Associations between intensity of child welfare involvement and child development among young children in child welfare. *Child Abuse & Neglect,* 33(9), 598–611.

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. & Hazell, P. (2006). Mental health of children in foster and kinship care in New South Wales, Australia. *Journal of Paediatrics and Child Health,* 42(3), 89-97.

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

Walsh, P., McHugh, M., Blunden, H., & Katz, I. (2018). *Literature Review: Factors Influencing the Outcomes of Children and Young People in Out-of-Home Care*. Pathways of Care Longitudinal Study: Research Report Number 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*, Pathways of Care Longitudinal Study: Outcomes of Children and Young People in Out-of-Home

Care,Technical Report Number 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.

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,* Issue 1. Art. No.: CD006546.

Wulczyn, F., Kogan, J., & Harden, B. J. (2003). Placement stability and movement trajectories. *Social Service Review, 77*(2), 212–236.

Wulczyn, F., & Chen, L. (2017). Placement Changes Among Children and Young People in Out-of-Home Care. Pathways of Care Longitudinal Study: Outcomes of Children and Young People in Out-of-Home Care. Research Report Number 8. Sydney. NSW Department of Family and Community Services.

Xu, F. (2019). Towards a rational constructivist theory of cognitive development Psychological Review, 126(6):841-864.

Zobairi, N., Piotrowski, N.A. (2019). Cognitive development. Salem Press Encyclopedia of Science. https://search.ebscohost.com/login.aspx?direct=true&db=ers&AN=87690317&site=eds-live. Accessed October 30, 2019.

8 Appendix

8.1 Independent variables included in the analysis

Child characteristics:

- age at entry (in years) (AGE_END_1), gender (male/female) (KD_ADMIN_STUDYCHILD_SEX), cultural background (Aboriginality (KD_ADMIN_STUDYCHILD_ATSI), CALD (KD_ADMIN_STUDYCHILD_CALD), Other Australian), DCJ District (PL_ADMIN_DISTRICTS)
- sum of the number of ROSH reports prior to entering care (rosh_sum_A),
- type of ROSH reports prior to entering care – a binary variable (Y/N) was created to reflect the type of reports including physical abuse (RI_physical_A), sexual abuse (RI_SEXUAL_A), neglect (RI_NEGLECT_A), psychological abuse (RI_PSYCH_A), psychological harm (RI_RISKPSYCH_A), domestic violence (RI_DV_A), carer serious mental health (RI_CARERMH_A), carer emotional state (RI_CAREREMOT_A), carer drug alcohol (RI_CARERDA_A) carer other issue (RI_CARERO_A), risk behaviour of the child/young person (RI_CYPRISK_A) and prenatal issues (RI_PRENATAL_A).

Placement characteristics:

- Placement stability – number of placements per 1,000 care days between waves (see Section 3.2.5)
- Predominant placement type (PLC_GRP_PR) - foster care, relative/ kinship care (with Aboriginal carer), relative kinship care (non Aboriginal carer), residential care, or other (supported accommodation, independent living or other)
- District group – The fifteen DCJ districts were categorised into seven larger groups.

Carer characteristics:

- Age (CD_CRR_AGE_W1), income (CD_CRR_FIN_INC), cultural background (CD_CRR_CARER_CULT), education (CD_CRR_CARER1_EDUC)
- carer satisfaction – a binary variable (Y/N) was created for each question including; being able to reach the caseworkers when needed (PC_CRR_ACCESS), assistance from caseworkers (PC_CRR_CW_ASSIST), your working relationship with other agencies related to Study Child (early

childhood education, counsellors, etc.) (PC_CRR_OTHAGENCY_RELN), having enough information about Study Child (PC_CRR_SATIS_INFO) and opportunities to meet other foster or kinship families (FS_CRR_SATIS_FAM)Carer psychological distress was assessed using the K10 (CH_CRR_K10CUT). Scores were categorised as low, moderate, high or very high.

- 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 (NE_CRR_SCTS_SCORE).

8.2 Model statistics

Table 14: Likelihood ratio test for mixed effect model[48].

Model	$\bar{\chi}^2$ DF 01	P Value*
Socio-emotional	204.21	0.000
Verbal	111.42	0.000
Non-verbal	84.05	0.000
Fine motor	41.46	0.000
Gross motor	84.24	0.000

*p values for the random effects in the regression models in Table 8-11 are the same p-values reported here.

Table 15: Model fit criteria using categorical variable for placement stability

Model	AIC	R^2
Socio-emotional	2324.35	0.4377
Verbal	2864.15	0.1151
Non-verbal	3215.68	0.1137
Fine motor	1768.98	0.1471
Gross motor	1534.77	0.2060

[48] This test is distributed with a 50:50 mixture of a chi bar with 0 DF and 1 DF

8.3 Sankey graphs showing dynamics of child development

The below diagrams (Figures 12 - 16) show the development transitions across waves.

Figure 12: Sankey diagram of socio-emotional development transition across waves 1 to 3. (n=805 individuals in Waves 1-3)

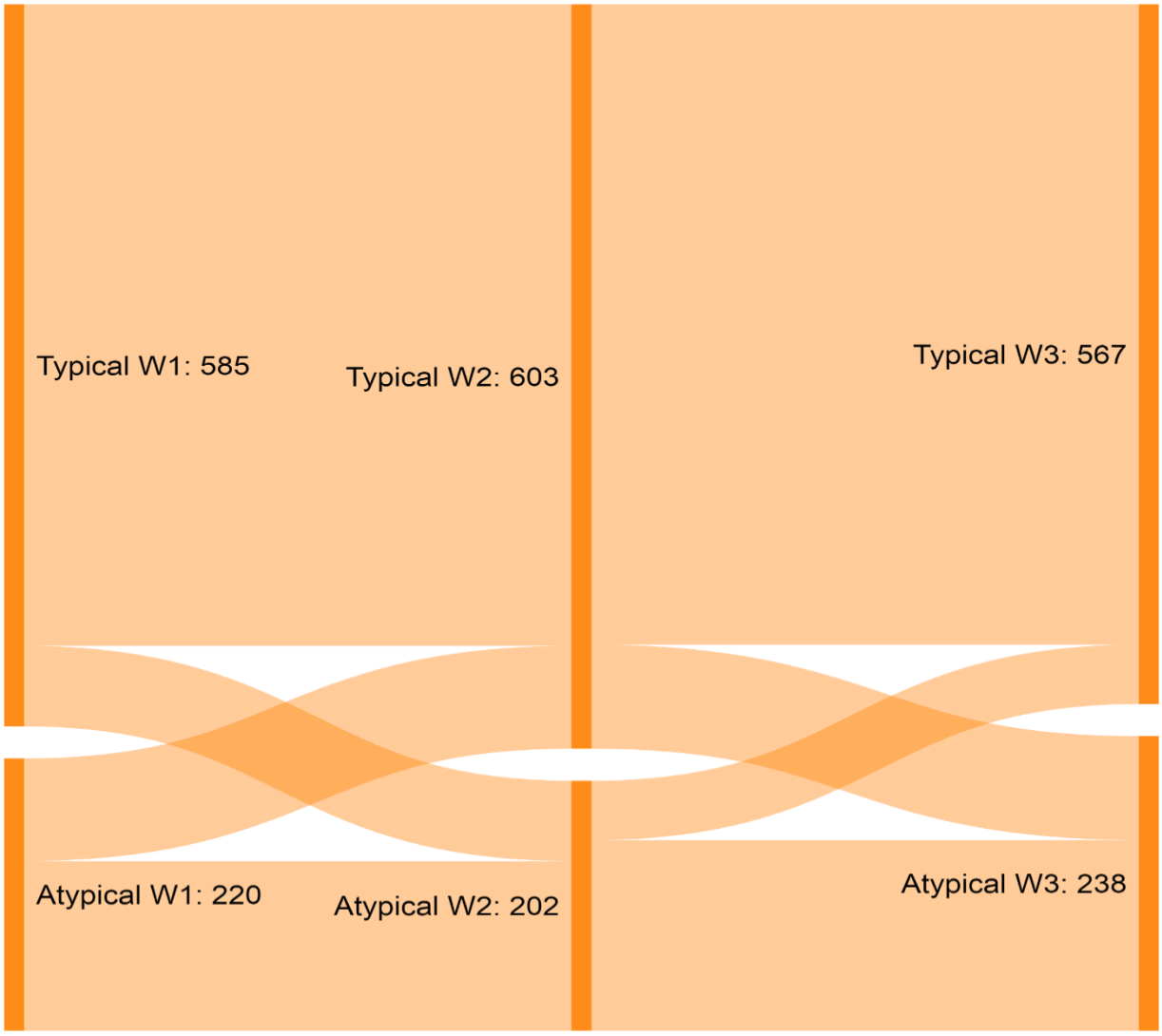


Figure 13: Sankey Diagram of verbal cognitive development transition across waves 1 to 3. (n=882 individuals in Waves 1-3)

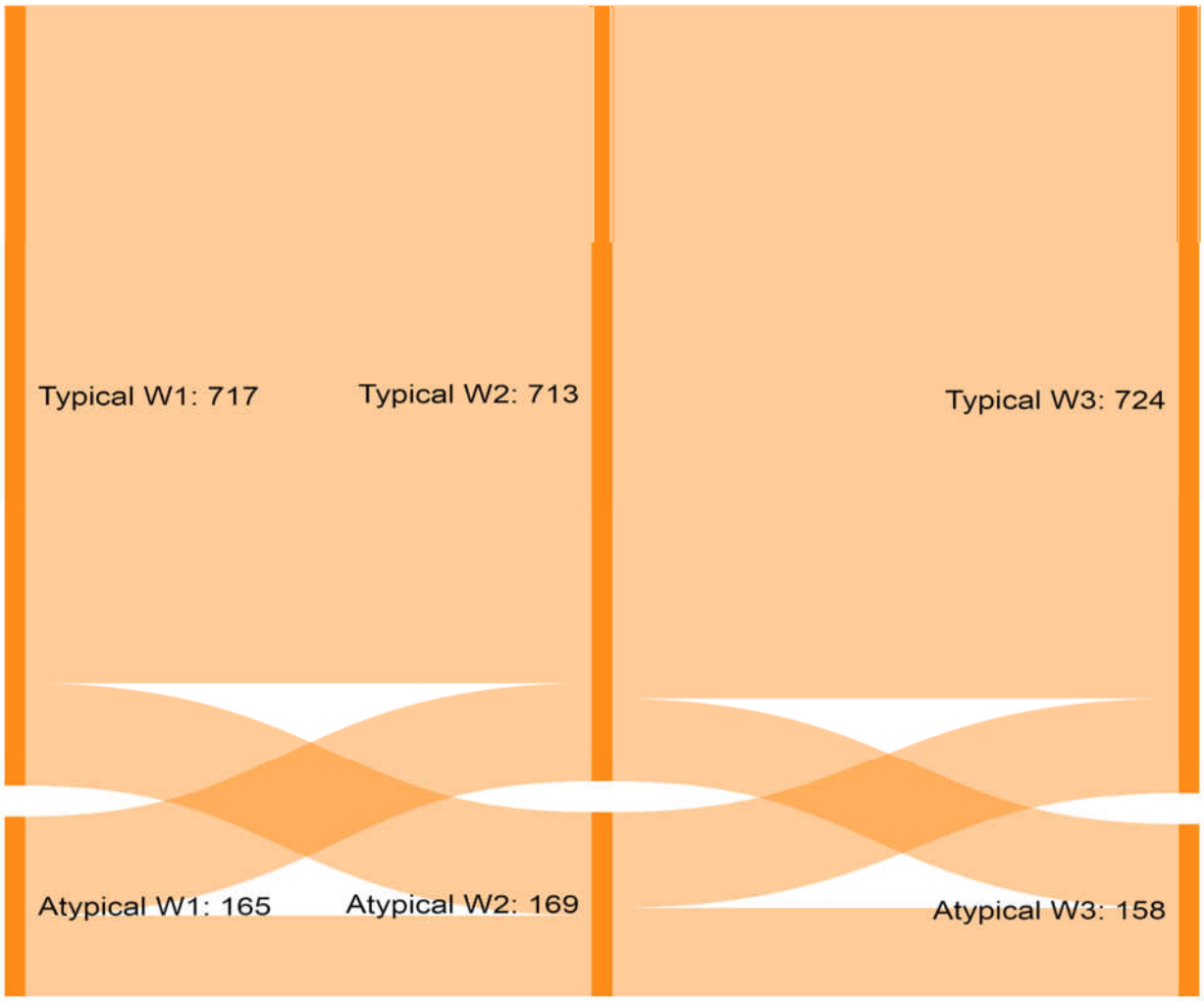


Figure 14: Sankey diagram of non-verbal cognitive development transition across waves 1 to 3. (n=882 individuals in Waves 1-3)

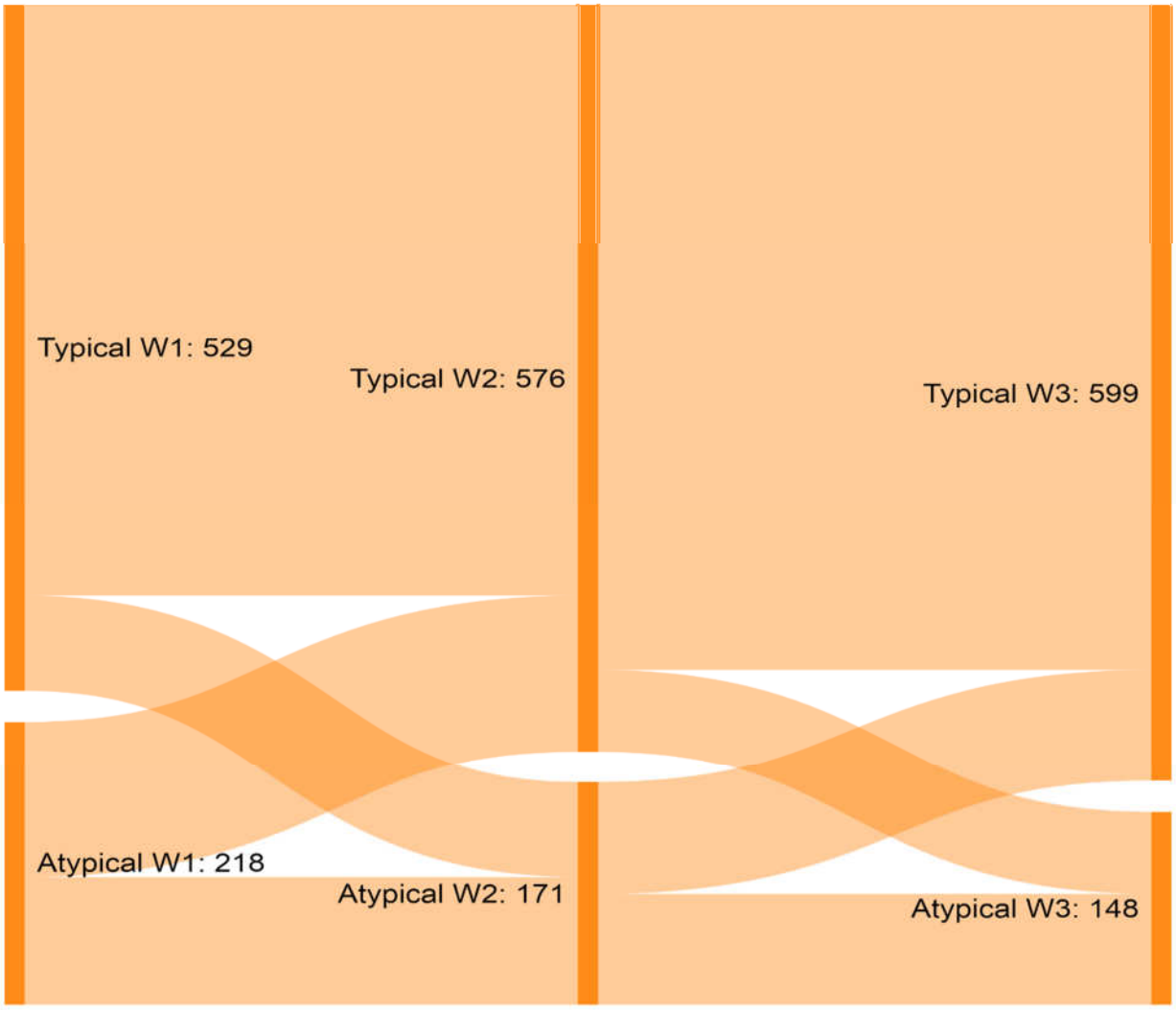


Figure 15: Sankey diagram of fine motor skill development transition across waves 1 to 3. (n=355 individuals in Waves 1-3)

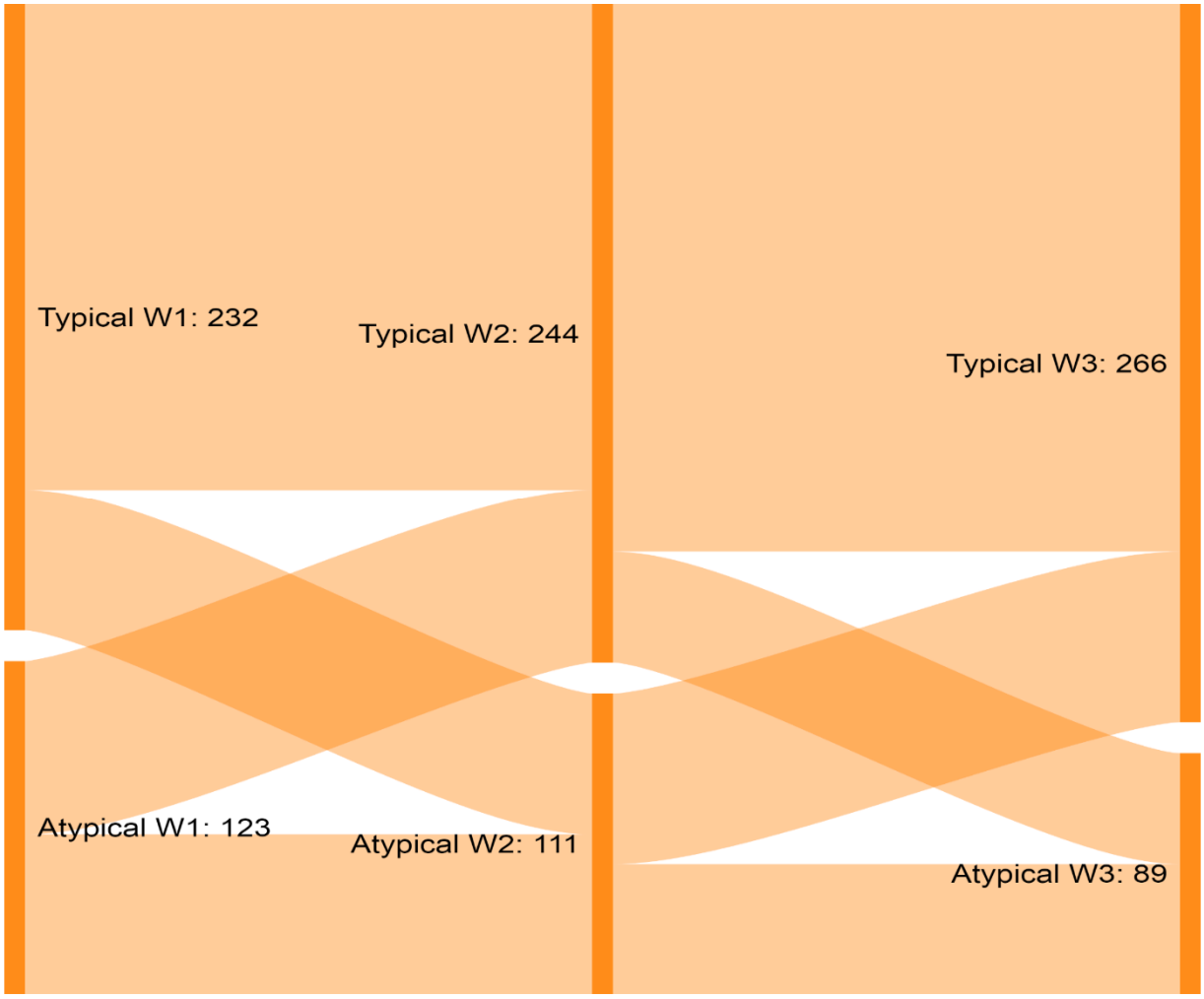
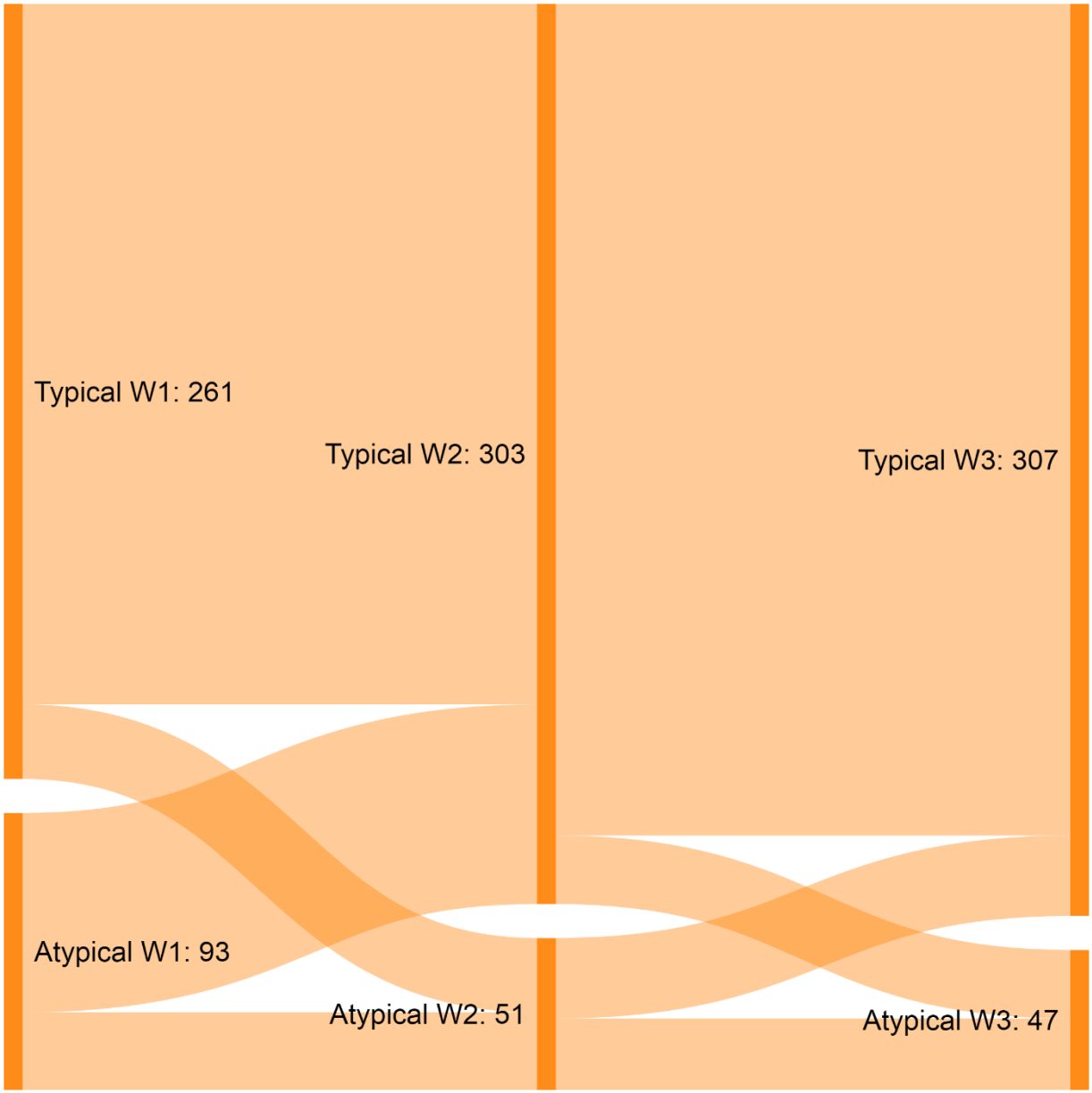


Figure 16: Sankey diagram of gross motor skill development transition across waves 1 to 3. (n=354 individuals in Waves 1-3)



8.4 Odds ratios for the final models – age at entry vs age at interview

Table 16: Odds ratio for the socio-emotional final model using age at entry to OOHC and age at interview

Variable	Age at entry			Age at interview		
	Odds ratio	Standard Error	P Value	Odds ratio	Standard Error	P Value
Placements per 1,000 care days between waves	**0.887**	**0.042**	**0.012**	**0.877**	**0.039**	**0.003**
Gender - Male (Ref Female)	**0.773**	0.167	0.234	0.754	0.162	0.190
Aboriginal Status - Aboriginal (Ref non-Aboriginal)	1.192	0.285	0.463	1.216	0.289	0.411
CALD Status – CALD (Ref Non-CALD)	1.580	0.541	0.182	1.578	0.537	0.180
Age at entry to OOHC (years)	**0.849**	**0.030**	**0.000**	**-**	**-**	**-**
ROSH Report Type (Y/N) (Ref no)						
psychological harm	**0.327**	**0.085**	**0.000**	**0.441**	**0.112**	**0.001**
Predominant Placement Type – (Ref Foster Carer)						
Relative and Kinship Care - Aboriginal	1.752	0.811	0.226	1.720	0.787	0.236
Relative and Kinship Care – non-Aboriginal	**2.253**	**0.605**	**0.002**	**2.205**	**0.586**	**0.003**
Residential Care	4.657	11.68	0.540	4.875	11.94	0.518
Others	1.459	1.00	0.584	1.187	0.819	0.804
Carer finance (Ref < $40K**)**						
40k to <80k	1.550	0.357	0.057	1.509	0.346	0.073
80k +	1.390	0.345	0.185	1.351	0.334	0.224
Carer age (Ref < 40years)						
41- 50 years	1.282	0.335	0.342	1.323	0.347	0.285
51- 60 years	**1.911**	**0.547**	**0.024**	**2.046**	**0.586**	**0.012**
>= 61 years	**2.823**	**1.035**	**0.005**	**2.809**	**1.022**	**0.005**
Carer satisfaction with: (Ref Not satisfied)						
Assistance from caseworkers	1.351	0.283	0.151	1.337	0.280	0.000
Working relationship with other agencies	**6.144**	**3.015**	**0.000**	**5.722**	**2.793**	**0.000**
Having enough information about child	**3.346**	**0.821**	**0.000**	**3.457**	**0.845**	**0.000**
Carer Psychological Distress – (Ref Low)						
Moderate	**0.167**	**0.041**	**0.000**	**0.192**	**0.046**	**0.000**
High	**0.174**	**0.068**	**0.000**	**0.208**	**0.080**	**0.000**
Very High	**0.088**	**0.056**	**0.000**	**0.084**	**0.054**	**0.000**
DCJ District Groups– (Ref Hunter New England & Central Coast)						
Murrumbidgee, Far West & Western	0.882	0.293	0.705	0.944	0.312	0.862
Illawarra Shoalhaven & Southern	1.316	0.532	0.498	1.380	0.554	0.422

Mid North Coast & Northern NSW	1.742	0.661	0.143	1.678	0.632	0.169
Western Sydney & Nepean Blue Mountains	0.886	0.305	0.726	0.910	0.312	0.783
South Eastern, Northern & Sydney	1.578	0.718	0.316	1.602	0.724	0.298
South Western Sydney	1.003	0.406	0.993	0.992	0.399	0.983
Time Fixed Effects – (Ref Wave 1)						
Wave 2	0.986	0.188	0.942	-	-	-
Wave 3	**0.390**	**0.078**	**0.000**	**-**	**-**	**-**
Age at Interview (years)						
Linear	**-**	**-**	**-**	**0.586**	**0.059**	**0.000**
Quadratic	**-**	**-**	**-**	**1.023**	**0.006**	**0.000**
Constant	0.899	0.603	0.874	2.730	1.935	0.156
Variance	**6.186**	**1.102**	**0.000**	**6.040**	**1.079**	**0.000**
Statistics						
Number of individuals	1,138			1,138		
Number of observations	2,387			2,387		
Chi Squared	180.63	DF	29	182.43	DF	28
AIC	2259.922	DF	31	2253.836	DF	30
BIC	2439.034	DF	31	2427.169	DF	30
Residual Intraclass Correlation	0.683	0.040		0.647		
R^2 Fixed Effects	0.446			0.453		
R^2 Fixed + Random Effects	0.652			0.650		

Table 17: Odds ratio for the verbal cognitive final model using age at entry to OOHC and age at interview

Variable	Age at entry			Age at interview		
	Odds ratio	Standard Error	P Value	Odds ratio	Standard Error	P Value
Placements per 1,000 care days between waves	0.988	0.036	0.728	0.956	0.032	0.174
Gender - Male (Ref Female)	**0.877**	0.145	0.428	0.892	0.148	0.491
Aboriginal Status - Aboriginal (Ref non-Aboriginal)	0.760	0.140	0.138	0.770	0.143	0.158
CALD Status – CALD (Ref non-CALD)	1.121	0.277	0.643	1.117	0.277	0.655
Age at entry to OOHC (years)				**-**	**-**	**-**
Predominant Placement Type – (Ref Foster Carer)						
Relative and Kinship Care - Aboriginal	**0.469**	**0.147**	**0.016**	**0.4421**	**0.1393**	**0.010**
Relative and Kinship Care – Non-Aboriginal	**1.713**	**0.341**	**0.007**	**1.645**	**0.3264**	**0.012**
Residential Care	1.163	2.230	0.937	1.024	1.968	0.990
Others				**0.826**	**0.403**	**0.006**
Carer Psychological Distress – (Ref Low)						
Moderate	0.881	0.176	0.524	0.796	0.156	0.244
High	0.936	0.314	0.844	0.846	0.283	0.616
Very High	**0.265**	**0.122**	**0.004**	**0.277**	**0.128**	**0.006**
DCJ District Groups – (Ref Hunter New England & Central Coast)						
Murrumbidgee, Far West & Western	**0.576**	**0.147**	**0.030**	**0.572**	**0.146**	**0.029**
Illawarra Shoalhaven & Southern	0.934	0.294	0.828	0.976	0.309	0.939
Mid North Coast & Northern NSW	0.956	0.286	0.880	0.959	0.287	0.888
Western Sydney & Nepean Blue Mountains	0.628	0.168	0.082	0.628	0.168	0.083
South Eastern, Northern & Sydney	0.807	0.286	0.545	0.850	0.302	0.647
South Western Sydney	0.551	0.167	0.049	0.563	0.171	0.058
Time Fixed Effects (Ref Wave 1)						
Wave 2	1.076	0.158	0.616	-	-	-
Wave 3	1.214	0.190	0.216	**-**	**-**	**-**
Age at Interview (years)						
Linear	-	-	-	1.007	0.063	0.917
Quadratic	-	-	-	0.993	0.004	0.099
Constant				**18.91**	**6.593**	**0.000**
Variance				**3.573**	**0.567**	**0.000**
Statistics						
Number of individuals	1240			1240		
Number of observations	3009			3009		
Chi Squared	66.16			61.42	DF 19	0.0000
AIC	2798.568	DF 22		2802.704	DF 21	
BIC	2930.774	DF 22		2928.901	DF 21	

Residual Intraclass Correlation	0.517			0.521		
R^2 Fixed Effects	0.368			0.366		
R^2 Fixed + Random Effects	0.119			0.108		

Table 18: Odds ratio for the non-verbal cognitive final model using age at entry to OOHC and age at interview

Variable	Age at entry			Age at interview		
	Odds ratio	Standard Error	P Value	Odds ratio	Standard Error	P Value
Placements per 1,000 care days between waves	**0.876**	**0.028**	**0.000**	**0.857**	**0.026**	**0.000**
Gender - Male (Ref Female)	**0.634**	**0.095**	**0.002**	**0.640**	**0.097**	**0.003**
Aboriginal Status - Aboriginal (Ref non-Aboriginal)	**0.728**	**0.112**	**0.040**	**0.733**	**0.115**	**0.047**
CALD Status – CALD (Ref Non-CALD)	1.088	0.244	0.707	1.109	0.252	0.651
Age at entry to OOHC (years)	1.004	0.020	0.839	-	-	-
ROSH Report Type (Y/N) (Ref no)						
Carer Drug & Alcohol	1.363	0.216	0.051	1.268	0.205	0.142
Carer Education (Ref High School or below)						
University	**1.624**	**0.336**	**0.019**	**1.689**	**0.353**	**0.012**
Other Post School	1.076	0.165	0.634	1.118	0.173	0.469
District – (Ref Hunter New England & Central Coast)						
Murrumbidgee, Far West & Western	1.326	0.300	0.211	1.291	0.295	0.265
Illawarra Shoalhaven & Southern	**1.890**	**0.543**	**0.027**	**1.914**	**0.558**	**0.026**
Mid North Coast & Northern NSW	1.183	0.308	0.519	1.168	0.308	0.556
Western Sydney & Nepean Blue Mountains	1.008	0.235	0.972	0.993	0.235	0.978
South Eastern, Northern & Sydney	**3.137**	**1.061**	**0.001**	**3.331**	**1.146**	**0.000**
South Western Sydney	1.019	0.268	0.943	1.050	0.281	0.854
Time Fixed Effects – (Ref Wave 1)						
Wave 2	**1.334**	**0.181**	**0.033**	-	-	-
Wave 3	**1.705**	**0.246**	**0.000**	-	-	-
Age at Interview (years)						
Linear	**-**	**-**	**-**	**1.196**	**0.068**	**0.002**
Quadratic	**-**	**-**	**-**	**0.990**	**0.004**	**0.006**
Constant	**5.255**	**1.443**	**0.000**	**4.371**	**1.302**	**0.000**
Variance	**2.856**	**0.437**	**0.000**	**2.986**	**0.458**	**0.000**
Statistics						
Number of individuals	1,278			1,278		
Number of observations	2,962			2,962		
Chi Squared	84.05	DF 16	0.000	78.78	DF 15	0.000
AIC	3090.99	DF 18		3092.124	DF 17	
BIC	3198.88	DF 18		3194.016	DF 17	
Residual Intraclass Correlation	0.465	0.038		0.476	0.038	
R^2 Fixed Effects	0.113			0.117		
R^2 Fixed + Random Effects	0.336			0.343		

Table 19: Odds ratio for the fine motor skills model using age at entry to OOHC and age at interview

Variable	Age at Entry			Age at Interview		
	Odds ratio	Standard Error	P Value	Odds ratio	Standard Error	P Value
Placements per 1,000 care days between waves	**0.919**	**0.037**	**0.035**	**0.915**	**0.035**	**0.022**
Gender - Male (Ref Female)	**0.482**	**0.086**	**0.000**	**0.478**	**0.086**	**0.000**
Aboriginal Status - Aboriginal (Ref non-Aboriginal)	0.851	0.158	0.385	0.853	0.159	0.394
CALD Status – CALD (Ref Non-CALD)	0.963	0.244	0.882	0.989	0.250	0.964
Age at entry to OOHC (years)	**1.056**	**0.107**	**0.588**	**-**	**-**	**-**
ROSH Report Type (Y/N) (Ref no)						
domestic violence	**1.544**	**0.297**	**0.024**	**1.441**	**0.267**	**0.048**
carer drug and alcohol	**1.578**	**0.293**	**0.014**	**1.563**	**0.291**	**0.016**
Carer finance (Ref < $40K)						
40k to <80k	**0.627**	**0.133**	**0.028**	**0.637**	**0.136**	**0.034**
80k +	0.892	0.202	0.614	0.898	0.203	0.634
Carer age (Ref < 40years)						
41- 50 years	0.977	0.201	0.908	0.983	0.202	0.935
51- 60 years	0.858	0.202	0.517	0.841	0.200	0.466
>= 61 years	**2.781**	**1.030**	**0.006**	**2.734**	**1.014**	**0.007**
Social Cohesion and Trust scale	**0.928**	**0.026**	**0.007**	**0.927**	**0.026**	**0.007**
DCJ District Groups – (Ref Hunter New England & Central Coast)						
Murrumbidgee, Far West & Western	**2.153**	**0.626**	**0.008**	**2.154**	**0.628**	**0.008**
Illawarra Shoalhaven & Southern	**2.191**	**0.732**	**0.019**	**2.165**	**0.726**	**0.021**
Mid North Coast & Northern NSW	1.587	0.495	0.138	1.596	0.500	0.135
Western Sydney & Nepean Blue Mountains	1.561	0.438	0.112	1.564	0.440	0.112
South Eastern, Northern & Sydney	1.298	0.421	0.420	1.323	0.429	0.388
South Western Sydney	1.646	0.503	0.102	1.675	0.513	0.092
Time Fixed Effects – (Ref Wave 1)						
Wave 2	1.117	0.201	0.539	-	-	-
Wave 3	**1.631**	**0.345**	**0.021**	**-**	**-**	**-**
Age at Interview (years)						
Linear	**-**	**-**		**0.915**	**0.195**	**0.677**
Quadratic				**1.045**	**0.041**	**0.254**
Constant	**5.022**	**2.367**	**0.001**	**5.226**	**2.773**	**0.002**
Variance	**1.776**	**0.455**	**0.000**	**1.785**	**0.459**	**0.000**
Statistics						
Number of individuals	734			734		
Number of observations	1,444			1,444		
Chi Squared	69.35	DF 21	0.000	70.37	DF 20	
AIC	1704.75	DF 23		1700.60	DF 22	
BIC	1826.07	Df 23		1816.66	DF 22	
Residual Intraclass Correlation	0.351	0.058		0.352	0.059	

R^2 Fixed Effects	0.155			0.159		
R^2 Fixed + Random Effects	0.281			0.284		

Table 20: Odds ratio for the gross motor skills model using age at entry to OOHC and age at interview

Variable	Age at Entry			Age at Interview		
	Odds ratio	Standard Error	P Value	Odds ratio	Standard Error	P Value
Placements per 1,000 care days between waves	**0.809**	**0.040**	**0.000**	**0.826**	**0.041**	**0.000**
Gender - Male (Ref Female)	0.630	0.149	0.051	0.587	0.144	0.030
Aboriginal Status - Aboriginal (Ref non-Aboriginal)	0.852	0.210	0.516	0.843	0.215	0.503
CALD Status – CALD (Ref non-CALD)	0.879	0.298	0.704	0.936	0.329	0.852
Age at entry to OOHC (years)	**0.986**	**0.120**	**0.910**			
ROSH Report Type (Y/N) (Ref no)						
Drug and Alcohol	**2.793**	**0.697**	**0.000**	**2.272**	**0.693**	**0.000**
Social Cohesion and Trust scale	**0.923**	**0.033**	**0.026**	**0.926**	**0.033**	**0.033**
DCJ District Groups – (Ref Hunter New England & Central Coast)						
Murrumbidgee, Far West & Western	1.845	0.686	0.100	1.871	0.720	0.103
Illawarra Shoalhaven & Southern	3.469	1.658	0.009	3.662	1.814	0.009
Mid North Coast & Northern NSW	2.05	0.858	0.104	1.893	0.832	0.147
Western Sydney & Nepean Blue Mountains	1.589	0.586	0.210	1.664	0.634	0.182
South Eastern, Northern & Sydney	2.598	1.197	0.038	**2.819**	**1.347**	**0.030**
South Western Sydney	1.704	0.685	0.185	1.910	0.796	0.120
Time Fixed Effects – (Ref Wave 1)						
Wave 2	1.859	0.409	0.005			
Wave 3	**2.298**	**0.600**	**0.001**			
Age at Interview (years)						
Linear	**-**	**-**	**-**	**3.933**	**1.036**	**0.000**
Quadratic	**-**	**-**	**-**	**0.807**	**0.038**	**0.000**
Constant	**13.523**	**7.150**	**0.000**	3.384	2.050	0.044
Variance	**4.195**	**1.000**	**0.000**	**4.592**	**1.102**	**0.000**
Statistics						
Number of individuals	775			775		
Number of observations	1615			1615		
Chi Squared	74.48	DF 15	0.000	83.72	DF 14	0.000
AIC	1458.84	DF 17	1437.88	DF 16		
BIC	1550.42	DF 17	1524.08	DF 16		
Residual Intraclass Correlation	0.563	0.057	0.583	0.058		
R^2 Fixed Effects	0.232		0.256			
R^2 Fixed + Random Effects	0.456		0.483			

8.5 Full models including all independent variables

Table 21: Odds ratio for the full socio-emotional model using age at entry to OOHC and age at interview

	Age at Entry			Age at Interview		
Variable	Odds ratio	Standard Error	P Value	Odds ratio	Standard Error	P Value
Placements per 1,000 care days between waves	**0.907**	**0.043**	**0.040***	**0.891**	**0.040**	**0.011**
Gender - Male (Ref Female)	0.796	0.170	0.286	0.777	0.167	0.240
Aboriginal Status - Aboriginal (Ref non-Aboriginal)	1.001	0.249	0.974	1.004	0.249	0.986
CALD Status – CALD (Ref non-CALD)	1.407	0.491	0.329	1.482	0.521	0.263
Age at entry to OOHC (years)	**0.897**	**0.356**	**0.006***	**-**	**-**	**-**
Number of Risk of Harm (ROSH) reports	0.966	0.018	0.070	0.971	0.019	0.133
ROSH Report Type (Y/N) (Ref no)						
physical abuse	0.889	0.246	0.670	0.958	0.266	0.878
sexual abuse	0.692	0.205	0.215	0.749	0.222	0.329
neglect	0.971	0.296	0.922	1.086	0.334	0.788
psychological abuse	0.788	0.238	0.430	0.798	0.241	0.456
psychological harm	**0.523**	**0.152**	**0.025***	**0.591**	**0.171**	**0.068**
domestic violence	1.351	0.350	0.246	1.468	0.384	0.143
carer serious mental health	0.685	0.184	0.159	0.690	0.187	0.171
carer emotional state	0.880	0.225	0.617	0.881	0.227	0.622
carer other issue	1.097	0.290	0.726	1.183	0.314	0.527
CYP risk behaviours	0.671	0.221	0.225	0.642	0.212	0.179
prenatal issue	1.012	0.332	0.971	0.697	0.232	0.277
Predominant Placement Type (Ref Foster Carer)						
Relative and Kinship Care - Aboriginal	1.436	0.690	0.452	1.456	0.699	0.433
Relative and Kinship Care - non-Aboriginal	**2.526**	**0.695**	**0.001***	**2.491**	**0.686**	**0.001**
Residential Care	4.242	9.822	0.533	5.800	13.35	0.445
Others	1.490	1.009	0.556	1.381	0.944	0.637
Carer finance (Ref < $40K**)**						
40k to <80k	1.418	0.331	0.135	1.391	0.326	0.159
80k +	1.294	0.324	0.303	1.241	0.312	0.390
Carer age (Ref < 40years)						
41- 50 years	1.250	0.328	0.396	1.261	0.333	0.381
51- 60 years	1.708	0.491	0.063	**1.774**	**0.513**	**0.048**
>= 61 years	**2.536**	**0.931**	**0.011***	**2.437**	**0.893**	**0.015**
Carer cultural background (Ref other)						
Aboriginal	1.462	0.500	0.267	1.547	0.532	0.204
CALD	0.998	0.335	0.995	0.929	0.313	0.827
Culture unspecified	0.628	0.226	0.250	0.920	0.295	0.795
Carer satisfaction with: (Ref Not satisfied)						
Being able to reach caseworkers when needed	0.646	0.172	0.101	**0.591**	**0.158**	**0.049***
Assistance from caseworkers	**1.830**	**0.461**	**0.016***	**1.858**	**0.470**	**0.014***

Working relationship with other agencies	**5.325**	**2.676**	**0.001***	**5.018**	**2.530**	**0.001***
Having enough information about child	**2.826**	**0.702**	**0.000***	**2.919**	**0.728**	**0.000***
Opportunities to meet other foster or kinship families	1.643	0.459	0.075	**1.745**	**0.492**	**0.048***
Social Cohesion and Trust scale	0.952	0.031	0.130	0.942	0.031	0.069
Carer Psychological Distress (Ref Low)						
Moderate	**0.174**	**0.043**	**0.000***	**0.200**	**0.049**	**0.000**
High	**0.179**	**0.070**	**0.000***	**0.219**	**0.084**	**0.000**
Very High	**0.024**	**0.020**	**0.000***	**0.024**	**0.021**	**0.000**
District – (Ref Hunter New England & Central Coast)						
Murrumbidgee, Far West & Western	0.893	0.298	0.735	0.981	0.328	0.954
Illawarra Shoalhaven & Southern	1.422	0.580	0.389	1.509	0.616	0.313
Mid North Coast & Northern NSW	1.858	0.702	0.101	1.802	0.684	0.121
Western Sydney & Nepean Blue Mountains	0.932	0.316	0.836	0.962	0.327	0.908
South Eastern, Northern & Sydney	1.671	0.766	0.263	1.707	0.786	0.245
South Western Sydney	0.877	0.360	0.749	0.906	0.374	0.810
Time Fixed Effects – (Ref Wave 1)						
Wave 2	1.040	0.204	0.841	-	-	-
Wave 3	**0.381**	**0.078**	**0.000***	**-**	**-**	**-**
Age at Interview (years)						
Linear	**-**	**-**	**-**	**0.576**	**0.058**	**0.000**
Quadratic	**-**	**-**	**-**	**1.025**	**0.006**	**0.000**
Constant	0.369	0.807	0.647	5.090	4.346	0.057
Variance	**5.385**	**1.003**	**0.000**	**5.441**	**1.027**	**0.000**
Statistics						
Number of individuals	1104			1104		
Number of observations	2258			2258		
Chi Squared	184.4	DF 46	0.000	182.4	DF 45	0.000
AIC	2177.75	DF 48		2173.31	DF 47	
BIC	2452.42	DF48		2442.25	DF 47	
Residual Intraclass Correlation	0.621	0.044		0.623	0.044	
R^2 Fixed Effects	0.464			0.471		
R^2 Fixed + Random Effects	0.640			0.643		

Table 22: Odds ratio for the full verbal cognitive model using age at entry to OOHC and age at interview

	Age at Entry			Age at Interview		
Variable	Odds ratio	Standard Error	P Value	Odds ratio	Standard Error	P Value
Placements per 1,000 care days between waves	**0.997**	**0.038**	**0.942**	**0.974**	**0.036**	**0.478**
Gender - Male (Ref Female)	0.824	0.142	0.259	0.827	0.142	0.269
Aboriginal Status - Aboriginal (Ref non-Aboriginal)	0.773	0.156	0.203	0.790	0.160	0.244
CALD Status – CALD (Ref non-CALD)	**1.025**	**0.029**	**0.003**	1.015	0.275	0.956
Age at entry to OOHC (years)	**0.908**	**0.029**	**0.003**	**-**	**-**	**-**
Number of Risk of Harm (ROSH) reports	0.989	0.015	0.466	0.987	0.015	0.403
ROSH Report Type (Y/N) (Ref no)						
physical abuse	0.978	0.212	0.918	0.960	0.209	0.853
sexual abuse	0.847	0.203	0.488	0.815	0.195	0.392
neglect	0.810	0.195	0.382	0.791	0.191	0.331
psychological abuse	0.718	0.180	0.186	0.709	0.177	0.169
psychological harm	1.506	0.356	0.083	1.450	0.342	0.115
carer serious mental health	1.440	0.311	0.092	1.448	0.313	0.087
carer drug & alcohol	1.349	0.268	0.132	1.349	0.268	0.133
carer other issue	0.932	0.204	0.749	0.922	0.202	0.712
CYP risk behaviours	0.824	0.222	0.472	0.807	0.218	0.426
prenatal issue	1.100	0.281	0.710	1.209	0.314	0.465
Predominant Placement Type – (Ref Foster Carer)						
Relative and Kinship Care - Aboriginal	**0.444**	**0.158**	**0.023**	**0.434**	**0.154**	**0.019**
Relative and Kinship Care – non-Aboriginal	**1.344**	**0.288**	**0.169**	**1.295**	**0.277**	**0.226**
Residential Care	1.115	2.097	0.954	0.937	1.758	0.972
Others	0.598	0.299	0.303	0.598	0.300	0.306
Carer finance (Ref < $40K**)**						
40k to <80k	1.084	0.209	0.674	1.108	0.213	0.596
80k +	1.211	0.257	0.367	1.251	0.265	0.290
Carer age (Ref < 40 years)						
41- 50 years	0.857	0.185	0.475	0.866	0.187	0.504
51- 60 years	0.854	0.200	0.500	0.857	0.201	0.512
>= 61 years	**1.634**	**0.505**	**0.112**	**1.677**	**0.519**	**0.094**
Carer cultural background (Ref other)						
Aboriginal	0.844	0.229	0.531	0.822	0.223	0.469
CALD	1.000	0.282	0.999	0.981	0.276	0.946
Culture unspecified	0.860	0.235	0.582	0.822	0.219	0.461
Carer education (Ref High School or below)						
University	1.532	0.381	0.086	1.542	0.383	0.081
Other Post School	1.202	0.221	0.317	1.212	0.223	0.295

Carer satisfaction with: (Ref Not satisfied)						
Being able to reach caseworkers when needed	1.297	0.230	0.143	1.358	0.240	0.083
Social Cohesion and Trust scale	0.983	0.027	0.525	0.982	0.027	0.506
Carer Psychological Distress – (Ref Low)						
Moderate	**0.911**	**0.194**	**0.661**	**0.864**	**0.182**	**0.485**
High	**0.792**	**0.278**	**0.506**	**0.765**	**0.267**	**0.443**
Very High	**0.273**	**0.135**	**0.009**	**0.287**	**0.142**	**0.012**
DCJ District Groups – (Ref Hunter New England & Central Coast)						
Murrumbidgee, Far West & Western	0.600	0.163	0.059	0.591	0.161	0.053
Illawarra Shoalhaven & Southern	0.982	0.321	0.955	0.980	0.320	0.951
Mid North Coast & Northern NSW	0.828	0.253	0.538	0.826	0.253	0.532
Western Sydney & Nepean Blue Mountains	0.639	0.179	0.109	0.625	0.175	0.092
South Eastern, Northern & Sydney	0.707	0.260	0.345	0.711	0.261	0.354
South Western Sydney	**0.467**	**0.153**	**0.020**	**0.470**	**0.153**	**0.021**
Time Fixed Effects – (Ref Wave 1)						
Wave 2	1.133	0.184	0.443	-	-	-
Wave 3	1.155	0.204	0.415	-	-	-
Age at Interview (years)						
Linear	**-**	**-**	**-**	**1.017**	**0.077**	**0.824**
Quadratic	**-**	**-**	**-**	**0.994**	**0.005**	**0.220**
Constant	**12.09**	**6.69**	**0.000**	**12.65**	**7.290**	**0.000**
Variance	**3.074**	**6.69**	**0.000**	**3.081**	**0.574**	**0.000**
Statistics						
Number of individuals	1,172			1,172		
Number of observations	2,563			2,563		
Chi Squared	78.42			76.44		
AIC	2422.146	DF 45		2422.729	DF	44
BIC	2685.348	DF 45		2680.082	DF	44
Residual Intraclass Correlation	0.483	0.047		0.484	0.047	
R^2 Fixed Effects	0.157			0.153		
R^2 Fixed + Random Effects	0.353			0.351		

Table 23: Odds ratio for the full non-verbal cognitive model using age at entry to OOHC and age at interview

Variable	Age at Entry			Age at Interview		
	Odds ratio	Standard Error	P Value	Odds ratio	Standard Error	P Value
Placements per 1,000 care days between waves	**0.876**	**0.030**	**0.000**	**0.877**	**0.029**	**0.000**
Gender - Male (Ref Female)	**0.589**	**0.094**	**0.001**	**0.597**	**0.096**	**0.001**
Aboriginal Status - Aboriginal (Ref non-Aboriginal)	0.802	0.140	0.207	0.807	0.142	0.225
CALD Status – CALD (Ref non-CALD)	0.975	0.233	0.914	0.946	0.228	0.817
Age at entry to OOHC (years)	1.023	0.028	0.406	**-**	**-**	**-**
Number of Risk of Harm (ROSH) reports	0.994	0.0126	0.648	0.985	0.012	0.234
ROSH Report Type (Y/N) (Ref no)						
neglect	0.795	0.158	0.250	**0.657**	**0.135**	**0.041**
carer mental health	1.438	0.282	0.064	1.438	0.285	0.066
carer other issue	0.791	0.153	0.227	0.948	0.437	0.907
Predominant Placement Type (Ref Foster Carer)						
Relative and Kinship Care - Aboriginal	0.674	0.211	0.208	0.636	0.200	0.151
Relative and Kinship Care – non-Aboriginal	**1.251**	**0.239**	**0.241**	**1.235**	**0.237**	**0.271**
Others	0.842	0.385	0.707	0.948	0.371	0.276
Carer age (Ref < 40 years)						
41- 50 years	1.072	0.211	0.723	1.046	0.208	0.819
51- 60 years	1.070	0.229	0.754	1.006	0.218	0.976
>= 61 years	**1.395**	**0.381**	**0.223**	**1.349**	**0.371**	**0.276**
Carer education (Ref High School or below)						
University	**1.573**	**0.355**	**0.045**	**1.579**	**0.360**	**0.045**
Other Post School	1.018	0.169	0.914	1.025	0.172	0.881
Carer satisfaction with: (Ref Not satisfied)						
Access to caseworker	1.041	0.217	0.847	1.081	0.226	0.709
Assistance from caseworkers	1.285	0.260	0.214	1.282	0.261	0.222
Satisfaction with information	1.220	0.239	0.310	1.250	0.246	0.255
Social Cohesion and Trust scale	0.966	0.241	0.170	0.969	0.024	0.212
DCJ District Groups – (Ref Hunter New England & Central Coast)						
Murrumbidgee, Far West & Western	1.363	0.330	0.201	1.312	0.320	0.265
Illawarra Shoalhaven & Southern	**1.869**	**0.577**	**0.043**	**1.880**	**0.587**	**0.043**
Mid North Coast & Northern NSW	1.113	0.309	0.701	1.117	0.314	0.693
Western Sydney & Nepean Blue Mountains	1.087	0.275	0.740	1.065	0.271	0.804
South Eastern, Northern & Sydney	**2.474**	**0.874**	**0.010**	**2.548**	**0.279**	**0.009**
South Western Sydney	0.933	0.268	0.809	0.960	0.279	0.888
Time Fixed Effects – (Ref Wave 1)						
Wave 2	1.314	0.200	0.067	-	-	-
Wave 3	**1.533**	**0.240**	**0.006**	-	-	-
Age at Interview (years)						
Linear	**-**	**-**	**-**	**1.318**	**0.088**	**0.000**

Quadratic	**-**	**-**	**-**	**0.985**	**0.004**	**0.000**
Constant	**6.704**	**3.102**	**0.000**	**4.588**	**2.186**	**0.001**
Variance	**2.956**	**0.491**	**0.000**	**3.042**	**0.504**	**0.000**
Statistics						
Number of individuals	2,675			2,675		
Number of observations	1,210			1,210		
Chi Squared	91.24	DF 29	0.000	95.96	DF 28	0.000
AIC	2782.263	DF 31		2770.18	DF 30	
BIC	2964.906	DF 31		2946.932	DF 30	
Residual Intraclass Correlation	0.473	0.041		0.480	0.041	
R^2 Fixed Effects	0.142			0.159		
R^2 Fixed + Random Effects	0.353			0.367		

Table 24: Odds ratio for the full fine motor skills model using age at entry to OOHC and age at interview

Variable	Age at Entry			Age at Interview		
	Odds ratio	Standard Error	P Value	Odds ratio	Standard Error	P Value
Placements per 1,000 care days between waves	0.927	0.038	0.065	0.929	0.037	0.063
Gender - Male (Ref Female)	**0.483**	**0.087**	**0.000**	**0.480**	**0.087**	**0.000**
Aboriginal Status - Aboriginal (Ref Non Aboriginal)	0.842	0.159	0.361	0.845	0.159	0.370
CALD Status – CALD (Ref Non CALD)	0.946	0.243	0.828	0.964	0.247	0.886
Age at entry to OOHC (years)	**1.062**	**0.109**	**0.559**	**-**	**-**	**-**
ROSH Report Type (Y/N) (Ref no)						
domestic violence	**1.567**	**0.305**	**0.021**	**1.483**	**0.278**	**0.036**
carer drug and alcohol	**1.578**	**0.297**	**0.015**	**1.561**	**0.294**	**0.018**
Carer finance (Ref < $40K)						
40k to <80k	**0.610**	**0.133**	**0.023**	**0.616**	**0.134**	**0.026**
80k +	0.844	0.195	0.463	0.842	0.194	0.456
Carer age (Ref < 40years)						
41- 50 years	1.014	0.211	0.948	1.017	0.212	0.936
51- 60 years	0.852	0.204	0.503	0.834	0.200	0.450
>= 61 years	**2.693**	**1.008**	**0.008**	**2.635**	**0.986**	**0.010**
Carer satisfaction with: (Ref Not satisfied)						
Being able to reach caseworkers when needed	1.537	0.381	0.083	1.527	0.378	0.087
Assistance from caseworkers	1.265	0.303	0.326	1.292	0.310	0.286
Having enough information about child	1.059	0.248	0.805	1.040	0.243	0.867
Social Cohesion and Trust scale	**0.932**	**0.264**	**0.013**	**0.932**	**0.026**	**0.013**
DCJ District Groups – (Ref Hunter New England & Central Coast)						
Murrumbidgee, Far West & Western	**2.189**	**0.645**	**0.008**	**2.197**	**0.649**	**0.008**
Illawarra Shoalhaven & Southern	**2.035**	**0.688**	**0.036**	**2.015**	**0.683**	**0.039**
Mid North Coast & Northern NSW	1.551	0.489	0.164	1.563	0.495	0.158
Western Sydney & Nepean Blue Mountains	1.488	0.422	0.161	1.495	0.424	0.156
South Eastern, Northern & Sydney	1.267	0.416	0.471	1.287	0.422	0.442
South Western Sydney	1.770	0.556	0.069	1.805	0.568	0.061
Time Fixed Effects – (Ref Wave 1)						
Wave 2	1.039	0.190	0.836	-	-	-
Wave 3	**1.534**	**0.332**	**0.047**	**-**	**-**	**-**
Age at Interview (years)						
Linear	**-**	**-**	**-**	**0.906**	**0.197**	**0.650**
Quadratic	**-**	**-**	**-**	**1.046**	**0.041**	**0.257**
Constant	**2.786**	**1.470**	**0.052**	**2.828**	**1.666**	**0.078**
Variance	**1.816**	**0.469**	**0.000**	**1.821**	**0.472**	**0.000**
Statistics						
Number of individuals	732			732		
Number of observations	1,421			1,421		
Chi Squared	74.35	DF 24	0.000	75.59	DF 23	0.000
AIC	1677.54	DF 26		1673.31	DF 25	
BIC	1814.27	DF 26		1804.79	DF 25	
Residual Intraclass Correlation	0.356	0.059		0.356	0.059	

R^2 Fixed Effects	0.166			0.170		
R^2 Fixed + Random Effects	0.292			0.295		

Table 25: Odds ratio for the full gross motor skills model using age at entry to OOHC and age at interview

Variable	Age at Entry			Age at interview		
	Odds ratio	Standard Error	P Value	Odds ratio	Standard Error	P Value
Placements per 1,000 care days between waves	**0.837**	**0.044**	**0.001**	**0.867**	**0.044**	**0.005**
Gender - Male (Ref Female)	0.714	0.172	0.162	0.678	0.167	0.115
Aboriginal Status - Aboriginal (Ref non-Aboriginal)	0.903	0.228	0.687	0.895	0.231	0.667
CALD Status – CALD (Ref non-CALD)	0.819	0.289	0.571	0.863	0.313	0.684
Age at entry to OOHC (years)	**0.994**	**0.135**	**0.967**	**-**	**-**	**-**
ROSH Report Type (Y/N) (Ref no)						
sexual abuse	0.531	0.227	0.140	0.451	0.195	0.066
DV	1.479	0.391	0.139	1.259	0.327	0.375
Drug and Alcohol	**2.315**	**0.598**	**0.001**	**2.335**	**0.616**	**0.001**
CYP risk behaviours	2.535	1.538	0.125	2.079	1.266	0.229
Carer finance (Ref < $40K**)**						
40k to <80k	0.730	0.206	0.264	0.692	0.199	0.200
80k +	0.936	0.280	0.824	0.872	0.266	0.654
Carer age (Ref < 40years)						
41- 50 years	0.802	0.224	0.428	0.830	0.236	0.513
51- 60 years	0.947	0.305	0.866	0.915	0.301	0.787
>= 61 years	1.862	0.933	0.215	1.721	0.883	0.290
Carer satisfaction with: (Ref Not satisfied)						
Assistance from caseworkers	1.302	0.332	0.300	1.366	0.355	0.230
Having enough information about child	1.592	0.463	0.109	1.767	0.521	0.054
Opportunities to meet other foster or kinship families	1.643	0.513	0.112	1.767	0.521	0.054
Social Cohesion and Trust scale	**0.923**	**0.034**	**0.029**	**0.929**	**0.034**	**0.047**
District – (Ref Hunter New England & Central Coast)						
Murrumbidgee, Far West & Western	1.624	0.617	0.202	1.642	0.638	0.202
Illawarra Shoalhaven & Southern	**3.714**	**1.808**	**0.007**	**3.943**	**1.970**	**0.006**
Mid North Coast & Northern NSW	2.465	1.060	0.036	2.295	1.003	0.057
Western Sydney & Nepean Blue Mountains	1.934	0.738	0.084	1.956	0.763	0.085
South Eastern, Northern & Sydney	2.414	1.123	0.058	**2.630**	**1.257**	**0.043**
South Western Sydney	1.641	0.686	0.236	1.718	0.738	0.208
Time Fixed Effects – (Ref Wave 1)						
Wave 2	1.563	0.378	0.065	-	-	-
Wave 3	**1.993**	**0.561**	**0.014**	**-**	**-**	**-**
Age at Interview (years)						
Linear				**3.830**	**1.074**	**0.000**
Quadratic				**0.807**	**0.041**	**0.000**
Constant	**4.588**	**3.272**	**0.033**	1.074	0.843	0.927
Variance	**3.555**	**0.987**	**0.000**	**3.756**	**1.044**	**0.000**

Statistics						
Number of individuals	718			718		
Number of observations	1,363			1,363		
Chi Squared	70.79	DF 27	0.000	81.05	DF 26	0.000
AIC	1284.01	DF 29		1261.65	DF 28	
BIC	1435.31	DF 29		1407.74	DF 28	
Residual Intraclass Correlation	0.519	0.069		0.560	0.064	
R^2 Fixed Effects	0.268			0.293		
R^2 Fixed + Random Effects	0.441			0.465		

Table 26: Summary of model fit

Model	R^2 Fixed Effects	R^2 Fixed Effects + Random Effects
Socio-emotional	0.45	0.65
Verbal cognitive	0.12	0.37
Non-verbal cognitive	0.11	0.34
Fine motor	0.16	0.28
Gross motor	0.23	0.46