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Research report

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

How Children Who Exit Out-of-Home Care to Guardianship Orders are Faring: Cognitive Abilities

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

Research Report No. 24-3

How Children who Exit Out-of-Home Care to Guardianship Orders are Faring: Cognitive Abilities

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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 on the Wave 1–4 unweighted data collected in face-to-face interviews with children, young people and caregivers; DCJ administrative data and record linkage health, education and offending data.

If you have any queries or accessibility difficulties in viewing the reports please contact the POCLS team at Pathways@facs.nsw.gov.au

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

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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 guardianship, 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 guardianship, 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 on guardianship orders and 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 30 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 DCJ's Transforming Aboriginal Outcomes, and

Ngaramanala (Aboriginal Knowledge Program), 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 and Governance (IDS/G) of all data related to Aboriginal Australians. The NSW Data Strategy (April 2021) includes the principles of Indigenous Data Sovereignty and Governance and provides provisions in regard to:

- Ensuring that our approach to data projects assesses the privacy, security and ethical impacts across the data lifecycle.
- Ensuring the controls are proportionate to the risks and that we consider community expectations and IDS.
- Guaranteeing a culture of trust between data providers and recipients, including Aboriginal people, through consistent and safe data sharing practices and effective data governance and stewardship.

A whole of government response to IDS/G in NSW is being led by the Department of Premier and Cabinet, along with the Coalition of Aboriginal Peak Organisations, including a position on reporting disaggregated data. The POCLS will continue to collaborate with Aboriginal Peoples and will apply the policy principles once developed.

In the interim, POCLS publications contain data tables that provide direct comparisons between the POCLS Aboriginal and non-Aboriginal cohorts. Interpretation of the data should consider the factors associated with the over-representation of Aboriginal children in child protection and OOHC including the legacy of past policies of forced removal and the intergenerational effects of previous forced separations from family and culture. This erosion of community and familial capacity over time needs to be considered in any reform efforts as it continues to have a profoundly adverse effect on child development. The implications for policy and practice should highlight strengths, develop Aboriginal-led solutions and ensure that better outcomes are achieved for Aboriginal people.

The POCLS is subject to ethics approval, including from the Aboriginal Health & Medical Research Council of NSW.

Executive summary

This is the third report in the series of analyses using data from the Pathways of Care Longitudinal Study (POCLS) to examine the outcomes of children and young people[1] who exited Out-of-Home Care (OOHC) to guardianship orders. This series of analyses focuses on 'transitioned guardians' – that is, OOHC relative/kinship carers who were allocated full parental responsibility for a child and were automatically transitioned to guardianship orders when the legislative amendment was proclaimed on 29 October 2014. The carers of children who received guardianship orders after that day are referred to as the 'new guardians' cohort. The children and the carers from the new guardians cohort were not within the scope of these analyses.

The current report focuses on the cognitive outcomes of children who exited OOHC on guardianship orders compared to children who remained in OOHC. In particular, this report aims to answer the research question:

- How do children who automatically transitioned to guardianship orders fare in cognitive development compared to those who remained in relative/kinship care?

The analyses used unweighted data from Waves 2, 3 and 4 of the POCLS interviews and the Department of Communities and Justice's (DCJ) administrative data. The sample used in the analysis comprised 142 POCLS children from the transitioned guardians cohort and 291 children who remained in relative/kinship care. The children's cognitive development was measured using the Peabody Picture Vocabulary Test (PPVT) and the Matrix Reasoning Wechsler Intelligence Scale for Children (WISC-IV). All outcomes were examined over the short to medium term (Wave 3 to Wave 4).

Key findings

Overall, children who were automatically transitioned to guardianship orders had comparable levels of cognitive functioning to children who remained in relative/kinship care.

- A statistically significant difference in verbal cognitive development was found between children on guardianship orders and children who remained in relative/kinship care. In particular,children on guardianship orders showed some improvements in their verbal ability compared to the reference group in the short

[1] The term 'children and young people' is used interchangeably with 'children' throughout this report, unless otherwise specified.

term (Wave 3); but not in the medium term (Wave 4). However, the difference was small and of little practical significance.

- No significant difference was found in non-verbal cognitive development in the short to medium term between children who were on guardianship orders and those who remained in relative/kinship care.

Implications for policy and practice

This report focuses on the cognitive outcomes of children who automatically transitioned to guardianship orders compared to children who remained in OOHC. The analysis shows that overall, children on guardianship orders had comparable levels of cognitive functioning compared to those who remained in OOHC relative/kinship placements. In particular, children on guardianship orders showed some improvements in their verbal ability in the short-term compared to the reference group; but did equally well in non-verbal ability in the short-to-medium term. This finding provides new evidence to inform DCJ's current initiative to provide post-guardianship financial assistance to transitioned guardians for a wide range of therapeutic interventions to enable the child to reach their optimal cognitive development.

Future waves of the POCLS data will be useful in establishing the longer term impact of guardianship orders on the outcomes of children, and for children exiting from a variety of OOHC legal orders and placement types to guardianship orders.

1 Introduction

In recent years, permanency planning for children and young people in Out-of-Home Care has been a major focus of child welfare policy in New South Wales (NSW). In general, permanency planning is undertaken to achieve legal, physical and relational permanency for a child through restoration, guardianship or adoption (Akin, Brook & Llord, 2015; Brodzinsky & Smith, 2019; Neil et al., 2020). A key aim of permanency planning is to ensure better outcomes for these children by establishing the best possible, stable care situation conducive to their positive development (Goemans et al., 2016).

In 2014, the NSW Government amended the *Children and Young Persons (Care and Protection) Act 1998* (NSW) to provide greater permanency for children and young people in OOHC. The amendment was proclaimed on 29 October 2014, and on that day, OOHC relative/kinship carers who had full parental responsibility for a child were automatically transitioned to guardianship orders. Relative/kinship carers who commenced guardianship on that day are known as 'transitioned guardians', and the carers who received guardianship orders after that date are usually referred to as 'new guardians'. Unlike the carers of children in statutory or supported OOHC, the guardians do not receive post-guardianship casework support from DCJ or their NGOs.[2]

The report extends the analysis in the POCLS Research Report 24-2 by examining the relationship between guardianship orders and children's cognitive developmental outcomes with a particular focus on the transitioned guardians cohort. The research aimed to answer the following question:

> How do children who were automatically transitioned to guardianship orders fare in cognitive development compared to those who remained in relative/kinship care?[3]

A better understanding of outcomes for children on guardianship orders could help explain, firstly, the impact of guardianship orders on children's cognitive development, and secondly, whether ongoing post-permanency support and services are required to improve the cognitive functioning of these children who have experienced OOHC. It is expected that a permanent placement via guardianship orders will ensure a high levels of

[2] For more information on the policy context in NSW, see the second paper in this series – POCLS Research Report 24-2.

[3] This report focuses on children from the 'transitioned guardians' cohort. As such 'new guardians', including foster carers who may have become guardians after 29 October 2014, were not included in the analysis. Children placed in foster care or intensive therapeutic care in OOHC were not the focus of this analysis.

stability, felt security, loving and enduring relationships for children which will then contribute towards their positive cognitive outcomes.

2 Literature review

2.1 Cognitive development of children who have experienced OOHC

This section briefly discusses the literature on verbal (language) and non-verbal (general) cognitive functioning in children in OOHC.

In general, cognitive development refers to the process of acquiring increasingly advanced reasoning and problem-solving ability from infancy to adulthood (McLean, 2016). Cognitive skills are the skills underpinning flexible problem-solving and effective learning, including memory, attention, verbal ability, and higher order thinking processes known as the executive functions (Fry, Langley & Shelton, 2016). Research has consistently shown that, as a consequence of early childhood adversity, children who have experienced OOHC are vulnerable to poor cognitive developmental outcomes (Fry, Langley & Shelton, 2016; Jacobsen, Wentzel-Larsen & Bergsund, 2020; Lum, Powell & Snow, 2017; Oswald, Heil & Goldbeck, 2009; Raby et al., 2017; Stock & Fisher, 2006). This is a significant concern because cognitive abilities influence academic achievements in later life (Raby et al., 2019; Stock & Fisher, 2006;) and for many children in OOHC, socio-emotional and behavioural challenges are underpinned by such cognitive vulnerabilities (McLean, 2016; Stock & Fisher, 2006).

Children who have experienced abuse and neglect are at an increased risk of less optimal language development (Stock & Fisher, 2006), including receptive and expressive language development (Lum, Powell & Snow, 2017). Viezel and colleagues found that children in OOHC who were subject to maltreatment performed worse on verbal ability and full-scale intelligence quotient tests than their matched non-OOHC counterparts (Viezel et al., 2014). A meta-analysis of 26 studies comparing the language development of maltreated children with children who had not been maltreated further demonstrated a reliable association between maltreatment and poorer language development (Lum, Powell & Snow, 2017). However, despite such strong evidence, some researchers argued that it is not clear whether maltreatment itself causes cognitive impairment or whether reduced cognitive functioning that pre-dates maltreatment places children at risk of maltreatment (Jacobsen, Wentzel-Larsen & Bergsund, 2020; Young-Southward et al., 2020). Dierkhising and colleagues added that child maltreatment often co-occurs with other types of violence, and potentially traumatic events (including other types of maltreatment) can have a more profound affect on development compared to acute experience of trauma (Dierkhising et al., 2019).

Nevertheless, further evidence from neuroimaging studies examining the relationship between child maltreatment and cognitive development suggest that, for children in OOHC, stress due to maltreatment affects brain development (De Bellis, 2001; Hart & Rubia, 2012; Twardosz & Lutzker, 2010). Further, chronic stress leads to long-term

disruption of a child's stress hormones which has permanent effects on the child's biology, impacting cognitive development and behavioural outcomes (Dierkhising et al., 2019).

An unstable caregiving situation and attachment disruption due to placement changes increase the risk of cognitive development delay for children in OOHC (Rubin et al., 2007). Language development in children requires adequate stimuli from the social environment, which, in turn, requires meaningful engagement from caregivers (Lum, Powell & Snow, 2017). A safe, stable home and relational permanence, which is the goal of permanency placement, including guardianship, has the potential for nurturing the committed relationships that are conducive to favourable cognitive developmental outcomes.

2.2 Permanency and cognitive outcomes

A key challenge for child welfare agencies in the 21st century is how to ensure the wellbeing of children in OOHC and those who were once in OOHC but have since transitioned to a permanency arrangement (Rolock et al., 2018). Despite the significance of this challenge, research that might inform an appropriate response is limited (White, 2016). This lack of research may reflect an assumption that children who obtain permanency have access to support from their permanent family systems (birth family, guardian or adopted family) and will fare well as adults as a result (Rolock et al., 2018). Yet, such an assumption is not based on strong evidence.

A review of interventions to address cognitive or socio-emotional challenges experienced by children in OOHC, specifically those in foster care (Leve et al., 2012), found that most of the interventions included in the review improved outcomes. Successful interventions provided support to foster families to improve home-based experiences that targeted 'behavioural and neurobiological underpinnings and placement capacity'. As such, guardianship could be argued to support positive relationships and safe environments for children and young people and thus is expected to influence cognitive development.

A search for Australian literature found no studies examining the cognitive outcomes of Australian children on guardianship orders. However, there is one Australian study that addressed an associated outcome – academic performance (Australian Institute of Health and Welfare, 2007; Australian Institute of Health and Welfare, 2011). The study investigated the academic performance of children on guardianship orders across multiple jurisdictions. Piloted in two stages, in 2007 and 2011, the study consistently found that children on guardianship or long-term OOHC orders were not meeting the national benchmarks for reading and numeracy and that outcomes for Aboriginal children within this group were significantly lower than the national benchmarks (Australian Institute of Health and Welfare, 2007; Australian Institute of Health and Welfare, 2011).

2.3 Current practice to support cognitive development

McLean (2016) proposed six principles that should inform interventions to support cognitive development in children in OOHC who have experienced trauma. The principles in Table 1 are based on the awareness that a child's cognitive development is influenced by factors that are cofounded with his or her trauma history.

Table 1: Six principles for supporting cognitive development for children in OOHC who have been traumatised (McLean, 2016)

1	Provide a safe environment and rich experiences that support cognitive development and enrich brain growth
2	Support children and carers to understand the link between traumatic events and cognitive difficulties
3	Develop and support positive relationships and connections in children's lives[4]
4	Maintain targeted interventions throughout childhood and adolescence
5	Offer all children in care targeted and trauma-specific interventions
6	Ensure that specific cognitive difficulties are addressed directly

Policy and practice in NSW have, to a significant extent, been guided by these six principles. Permanency planning aims to ensure a safe and secure family environment for a child and are clearly in line with the first principle.

The DCJ's espousal of trauma-informed practice, central to the Therapeutic Care Framework (TCF) (NSW Department of Family and Community Services, 2017), addresses the second principle for providing support to children and carers to understand the link between traumatic events and cognitive difficulties. Carers receive training on the impact of neglect and abuse on a child's development to help them support children with cognitive difficulties who have experienced trauma.

[4] For Aboriginal children, this includes connection to culture and country. The Authors note that Aboriginal kinships, community, connection to culture and family are culturally complex and that this report is not aimed at pursuing to understand and/or identify that complexity in its findings.

An important goal of current practice for caseworkers in OOHC is to establish relational permanence between a child and the carer by creating sustained, meaningful connections and enduring relationships (McLean's principle 3). Legal permanence underpins relational permanence. The final two principles directly relate to the TCF, through which therapeutic care can be customised to a child's individual needs.

While the DCJ's current Practice Framework is designed to foster cognitive development, this service is not available to all children who are on guardianship orders. Only children from the transitioned guardians cohort are eligible for post-permanency therapeutic support such as therapeutic camps.[5]

2.3.1 Current support and services available to the guardians to care for the children

The new guardian cohort, which includes foster carers, is required to go through a suitability assessment process which the transitioned guardians were not. Through the assessment process, the new guardians are required to demonstrate their ability to meet the long-term needs of the child without the need for ongoing case management or supervision. Therefore, case management support is not provided for the new guardians after the guardianship orders. However, if an area of need is identified for carer support, casework helps to build prospective guardians' capacity prior to guardianship orders.

This was quite different for the children and guardians from the transitioned cohort. Prior to the automatic transition to guardianship orders on 29 October 2014, there was no assessment for the relative/kinship carers or casework support to build their capacity in helping children with cognitive difficulties who have experienced trauma. However, children from the transitioned guardians cohort have access to a whole range of post-guardianship additional support payments. In particular, transitioned guardians receive financial assistance for approved therapeutic intervention to meet the child's emotional, psychological, social or behavioural needs – i.e., professional therapy for at-risk children.[6] Examples of professional therapy could include counselling, psychological therapy, physiotherapy, occupational therapy, play therapy, group therapy, behaviour therapy, family therapy and speech therapy. Until April 2021, the new guardians had

[5] Guardianship support for transitioned guardians may include: maintaining identity and culture, relative/kin carer assessment, long-term establishment costs, teenage Education Payment (TEP), out-of-guidelines payment, respite/support workers, travel (excluding holidays), back payment (<13 weeks), professional reports, professional therapy, clothing and footwear, therapeutic camps, removal/storage, contact costs, legal costs, childcare, education and medical/dental.

[6] Therapy to be recommended in an assessment conducted by a suitably qualified therapist or counsellor.

limited access to this additional support because such payments had to be agreed upon by DCJ and guardians before a guardianship order was granted. After orders were granted, the new guardians were not able to request additional financial support. However, changes to the Guardianship Financial Guidelines in April 2021 allows for a request for additional support by the new guardians post guardianship orders.

3 Methods

3.1 Data source

The POCLS is the first large-scale prospective longitudinal study of children and young people in OOHC in Australia. The POCLS provides an opportunity to examine the association between guardianship orders and children's outcomes, as the legislative change occurred after the Wave 1 interviews (between 9 June 2011 and August 2013) and before the Wave 3 interviews (October 2014 and July 2016). A total of 142 children were from the 'transitioned guardians' cohort, having left OOHC on 29 October 2014 (before the commencement of Wave 3); these children form the guardianship orders group referred to in this report.[7]

The research reported here used unweighted data from Waves 2, 3 and 4 of the POCLS interviews and DCJ administrative data. DCJ administrative data included historical data on engagement with child protection services (e.g., the number and type of Risk of Significant Harm [ROSH] reports) and OOHC placements (e.g., placement type) up to 30 June 2016. The interview data consist of responses by the child and carer to a range of questions and results on a wide range of standardised psychometric tests.[8]

3.2 The study design: quasi-experimental non-equivalent groups design

This study used a quasi-experimental research design – specifically, a non-equivalent groups design – to examine the impact of guardianship orders on the cognitive development of children.

The non-equivalent groups design requires a pre-test and post-test outcome for the treatment and control groups. As children were not randomly assigned to either group, non-equivalence between the groups likely exists. Previous studies examining differences in permanency outcomes between children in relative/kinship care and non-

[7] Two other children also exited to guardianship orders on 29 October 2019 but did not have a guardianship order at the time of the Wave 3 interview. This is probably because, for them, the Wave 3 interview took place before the 29 October 2014.

[8] The measures are standardised, meaning they can be used to show how a cohort of children compare with peers in the general population and also how individuals are developing. It is important to take cultural considerations into account when using standardised measures with children from minority cultures. The standardised measures used in the POCLS were selected in 2010 at which time measures of child development had not been tested for validity with Aboriginal children in Australia.

kinship care found pre-existing group differences and/or selection biases (Koh & Testa, 2008). The two groups could vary systematically in the types and severity of the children's maltreatment and other characteristics (Berger et al., 2009). As pre-existing differences between the control and treatment groups could not be ruled out, these differences needed to be controlled for statistically when comparing the post-guardianship outcomes.

In this study, the effect of guardianship orders was considered as the 'intervention or treatment effect'. Given the availability of data over multiple time points, cognitive outcomes were measured before treatment at baseline (Wave 2 pre-test) and after treatment at two subsequent time points (Waves 3 and 4 post-tests). The after-treatment (post-guardianship) outcomes which were measured at Wave 3 and Wave 4 have been considered as short-term and medium-term outcomes respectively. A summary of the design is provided in Table 2 and Table 3.

Table 2: The non-equivalent groups design

Group	Pre-test	Intervention	Post-test	Post-test
Treatment group	O_{w2}	G	O_{w3}	O_{w4}
Control group	O_{w2}		O_{w3}	O_{w4}

Note: 'G' represents 'the provision of guardianship orders' while O represents outcome measures. The subscripts indicate the wave at which the outcome measure was taken, e.g., O_{w2} is the outcome measure at the time of the POCLS Wave 2 interview.

Table 3: The control and treatment groups in the non-equivalent groups design

Sample	Children placed in relative/kinship care at Wave 2
Intervention/treatment	Provision of guardianship orders on 29 October 2014
Control group	Children who did not exit OOHC and remained in relative/kinship care
Treatment group	Children who exited OOHC on guardianship orders after Wave 2 and before Wave 3 ('transitioned guardians')
Pre-test outcome	Cognitive outcomes at Wave 2
Post-test outcome	Cognitive outcomes at Wave 3, Wave 4

The non-equivalent groups design includes a pre-test outcome, which allows us to measure the pre-existing differences between the groups on the outcome variable and, therefore, addresses the issue of selection biases (or selection threat to internal validity) mentioned above.

3.3 Measures and variables

3.3.1 Measures of cognitive functioning

The children's cognitive functioning consists of both verbal and non-verbal components. Verbal ability was assessed using the PPVT (Dunn & Dunn, 2007), while non-verbal ability was assessed using the Matrix Reasoning Wechsler Intelligence Scale for Children WISC-IV (Flanagan et al., 2011).

Verbal ability

The PPVT standard scores and cut-offs were used from the POCLS Wave 1 onwards for children aged 3 to 17 years 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, attributes) across all levels of difficulty. The scale yields raw scores based on correct answers and errors. The raw scores were converted to age- and grade-based standard scores and percentile ranks. The PPVT standard scores were used for the analysis presented in this report.

Non-verbal ability

The Matrix Reasoning WISC-IV is a 35-question test that measures logical reasoning or fluid intelligence. From Wave 1 of the POCLS, this measure was used for children aged 6 to 16 years to identify possible concerns relating to non-verbal ability.[9] Each child was given test items appropriate to their age, with older children skipping earlier questions. The total score has a possible range of 0 to 35. Raw scores were converted to age-adjusted standardised scores, which were used in the analysis presented in this report.

3.3.2 Variables

The POCLS Research Report 24-2 found that children's CBCL Externalising Problems score, history of ROSH report involving neglect before entry to OOHC and the pre-

[9] The POCLS also collected data on non-verbal cognitive ability using the Ages and Stages Questionnaire's (ASQ) Problem Solving scale (Squires & Bricker, 2009). This was not used in this analysis due to the limitations of using ASQ standardised scores (see POCLS Technical Report 9).

guardianship carer distress levels – are the most important factors associated with being transitioned to guardianship orders.

Based on the evidence from the POCLS Research Report 23 that suggested temperament is an important factor associated with children's development (Wells, 2020), three independent variables to describe temperament were further considered for inclusion. Temperament has been defined as 'differences between individuals, visible from birth, in how they typically behave and react to their social surroundings' (Sanson & Oberklaid, 2013). Temperament can be thought of as a behavioural style which an individual tends to follow in a variety of situations and contexts. Three dimensions of temperament (sociability, reactivity and persistence) were considered. Sociability is the trait associated with being shy or outgoing in new situations and when meeting new people; reactivity is the strength of emotional reactions to positive and negative experiences; and persistence is the capacity to maintain attention despite distractions.

However, the temperament variables and children's CBCL Externalising Problems scores were not statistically significant in the final binary logistic regression model of factors influencing exit to guardianship orders and were, therefore, dropped from further analysis.[10]

The dependent variables in the current analysis were children's cognitive functioning at Wave 3 and Wave 4 using PPVT and Matrix Reasoning WISC-IV.

3.4 Sample selection

The same sample as used in the POCLS Research Report 24-2 was used here. A total of 501 children were in relative/kinship care placement in Wave 2,[11] of which the vast majority were also in relative/kinship placement in Wave 1 (92.2%). Sixty-eight children were excluded as they did not participate in either of the subsequent waves (i.e., Wave 3 or 4), giving the final sample of 433 children in relative/kinship care in Wave 2.

Of the 433 children from Wave 2, 291 children (67.2%) remained in relative/kinship care at Wave 3 and 142 children (32.8%) had transitioned to guardianship orders. Of the 291 children who remained in relative/kinship care, 21 did not participate in Wave 3 interviews and 14 changed carer households between Wave 2 and Wave 3. Fifty-one children did

[10] Please see results for the binary analysis in Appendix Table 14.

[11] Of the 598 children in relative/kinship care in Wave 1, 462 (77.3%) remained in relative/kinship care in Wave 2, six were restored, six transitioned to guardianship, 12 moved to foster care, one to residential care and the rest (n=111, 18.6%) either declined to participate in the study at Wave 2 or had 'aged out' (i.e., were aged 18+ years).

not participate in Wave 4 interviews and 31 changed households between Wave 3 and Wave 4.

All of the 142 children who were on guardianship orders by Wave 3 were from the 'transitioned guardians' cohort. All of them participated in Wave 3 with only one child moving households between Wave 2 and Wave 3. Seventeen children did not participate in Wave 4 interviews and three changed households between Wave 3 and Wave 4.

3.5 Analysis

This report followed the same analytical approach as in Research Report 24-2, which employed both descriptive analysis and multiple regression models. Multiple regression models were conducted to determine the differences between the groups on their post-test PPVT and Matrix Reasoning WISC-IV scores after adjusting for differences in the pre-test scores and other factors that are significantly associated with group membership. To correct for potential bias resulting from pre-test measurement error and group non-equivalence, PPVT or Matrix Reasoning WISC IV scores at Wave 2 were adjusted for or corrected by measurement error.[12]

Two sets of adjusted pre-test scores for the PPVT and Matrix Reasoning WISC-IV scales were generated using both Cronbach's alpha (upper bound estimate of reliability) and test-retest reliability (lower bound estimate of reliability). If a significant effect of the treatment (guardianship orders) was found using both estimates, we may conclude that the result was not biased by the pre-test measurement error. With regard to the dependent variables, that is, PPVT and Matrix Reasoning WISC-IV scores, we have examined the response patterns of these two variables over the three waves of interest (Wave 2, Wave 3 and Wave 4); this can be seen in the Appendix. Regression models for PPVT and Matrix Reasoning WISC-IV were then conducted using the adjusted variables. All analyses were conducted with Stata MP 16.0.

[12] The formula for the adjustment is: $X_{adj} = \bar{X} + r(X - \bar{X})$, where $X_{adj} = adjusted\ pretest\ score;\ \bar{X} = mean\ of\ original\ pretest\ scores\ of\ either\ the\ control\ or\ treatment\ group; r = reliability.$

4 Results

4.1 Sample characteristics

This section provides a brief description of the child characteristics in the sample. Detailed information about the sample characteristics can be found in the POCLS Research Report 24-2.

More than half (52.7%) of the children in the sample were male, with 40.0% being identified as Aboriginal and 14.8% with a CALD background. Over half (53.6%) of children entered OOHC before they were three years old. The mean age of first entry to OOHC was 3.04 years (SD=3.30). The mean number of ROSH reports prior to entry to OOHC was 8.50 (SD=7.82). Around three-quarters of children (73.4%) were subject to ROSH reports for physical abuse, followed by 70.7% for carer drug and alcohol abuse. One in every five children had a ROSH report for prenatal issues. Around two-thirds (67.2%) of children had been placed with at least one sibling.

4.2 Patterns of pre-test and post-test cognitive outcomes

This section presents the results comparing the pre-guardianship and post-guardianship cognitive outcomes.

Results from the bivariate analysis (Table 4) show that there is no significant difference in either PPVT (n=321) or Matrix Reasoning WISC-IV scores (n=177) between the groups at baseline. For both groups of children, the PPVT scores and Matrix Reasoning WISC-IV scores at Wave 2 were below the mean standard scores for the normative sample, that is, 100 (standard deviation 15) for PPVT and 10 (standard deviation 3) for Matrix Reasoning WISC-IV.

Table 4: Independent t-test results for baseline PPVT and Matrix Reasoning WISC-IV scores between the children on guardianship orders and those who remained in relative/kinship care

Scores at Wave 2	Relative/Kinship care		Guardianship		t	Sig (P)
	Mean (n)	SD	Mean (n)	SD		
PPVT	94.0 (219)	13.0	95.3 (102)	14.8	-0.80	0.42
Matrix Reasoning WISC-IV	8.4 (124)	3.2	9.3 (53)	2.9	-1.87	0.06

Figure 1 shows the pre- and post-test mean standard PPVT scores for the guardianship and relative/kinship groups. It shows that the children on guardianship orders had slightly higher PPVT scores at all time points than children in relative/kinship care. Both groups appear to have improved in scores between Wave 3 and Wave 4, with the rate of increase being marginally lower for the guardianship group, albeit from a relatively higher base. It needs to be noted that the mean standard scores for both groups were lower than (but close to) the normative mean of 100, suggesting that the language skills of the children in the two groups were generally lower than their age peers in the population.[13]

Figure 1: Pre- and post-guardianship mean PPVT standard scores for children on guardianship orders and those who remained in relative/kinship care across waves

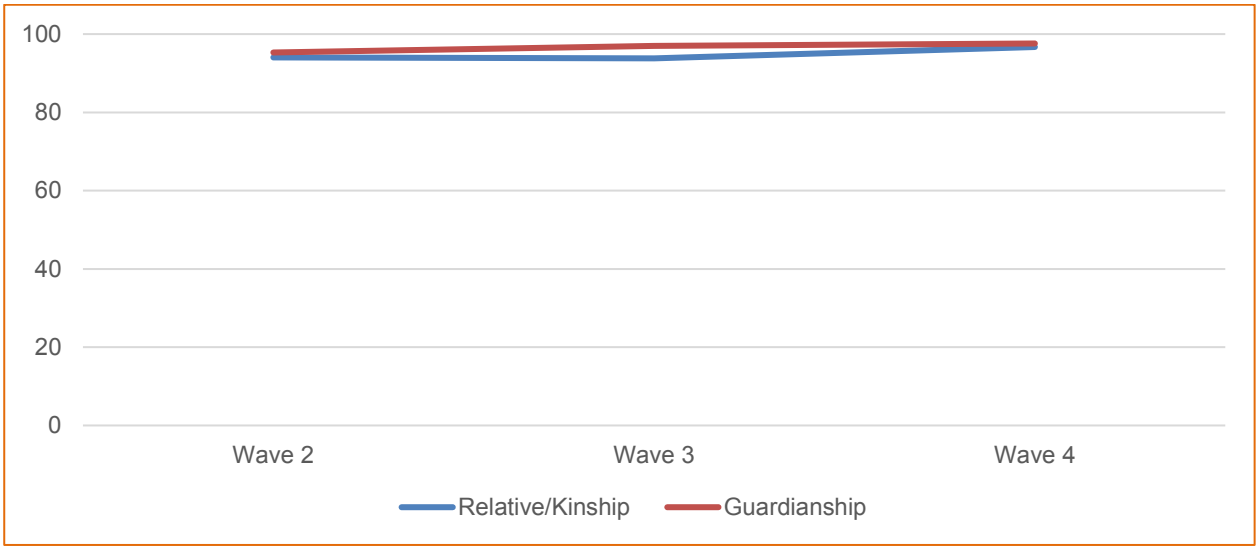
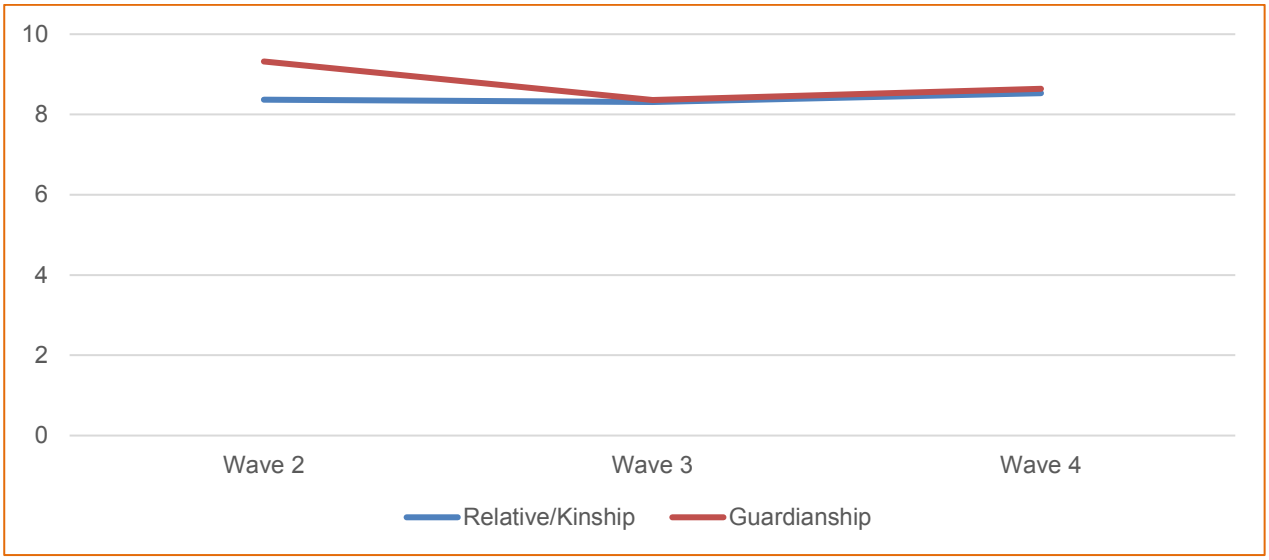


Figure 2 shows the pre- and post-test mean standard Matrix Reasoning WISC-IV scores for the guardianship and the relative/kinship care groups. The two groups had similar results in both Waves 3 and 4, although the guardianship group had a higher (albeit non-

[13] The proportions of children who were below the normal range of the PPVT and Matrix Reasoning WISC-IV varied between the two cohorts. Regarding PPVT, 19.2% and 16.7% of those in relative/kinship care were below the normal range in Wave 3 and Wave 4, respectively, compared to 13.7% and 15.7% for those on guardianship orders. As for Matrix Reasoning WISC-IV, 26.2% and 19.6% of children in relative/kinship care were below the normal range in Wave 3 and Wave 4, respectively, compared to 26.9% and 21.8% for children on guardianship orders.

significant) mean score at baseline (9.3 vs. 8.4).[14] The mean standard scores for both groups were lower than the normative mean of 10.

Figure 2: Pre- and post-guardianship mean Matrix Reasoning WISC-IV standardised scores for children on guardianship orders and those who remained in relative/kinship care across waves



4.3 Comparison of post-guardianship cognitive outcomes

In this section, we estimated the differences between groups on their post-test PPVT and Matrix Reasoning WISC-IV scores after adjusting for differences in the pre-test scores and other factors that are significantly associated with group membership. For example, in the final multiple regression model for the PPVT scores (Table 7), the dependent variable is the PPVT scores in either Wave 3 or Wave 4 and the independent variables are: the baseline PPVT scores adjusted by either Cronbach's alpha or test-retest reliability; an indicator variable to identify group membership; an indicator variable for whether there was a ROSH report involving neglect prior to entry to OOHC; and the pre-guardianship K10 cut-off variable with three categories (low, moderate and high). Only the models adjusted with Cronbach's alpha are presented here. The models adjusted by

[14] It should be noted that although both the mean scores (8.4 and 9.3) were lower than the normative mean of 10, both the scores fell within the normal/typical range (i.e., >=7). The multiple regression model shows that there is no group difference in the WISC-IV standard scores after accounting for the difference at Wave 2 and other covariates (Table 8).

test-retest reliability are presented in the Appendix. The methods provide consistent results.[15]

Based on the multiple regression model that used the adjusted baseline independent variable, a statistically significant difference (p=0.04) was found in PPVT scores at Wave 3 with children on guardianship orders scoring an average 3.25 points higher than the children in the relative/kinship care group (Table 5). This difference did not persist into Wave 4.

The difference of 3.25 points in the mean PPVT scores between the two groups, though statistically significant, is small. This corresponds to a standardised coefficient of 0.10. Estimating the relative effect size using the partial eta-squared measures of the regression models produced an effect size of 0.01.[16] Such an effect is considered below the recommended minimum effect size for reporting in social science (Ferguson, 2009). No other variables were observed to influence verbal cognitive development.

Table 5: Multiple regression models of post-guardianship PPVT standard scores (Cronbach's alpha)[15]

Variables	Wave 3			Wave 4		
	Unstandard-ised coefficient B	95% CI	Sig.	Unstandard-ised coefficient B	95% CI	Sig.
Adjusted Wave 2 PPVT scores	0.63	0.49–0.77	0.00*	0.74	0.62–0.86	0.00*
Group (guardianship vs kinship)	3.25	0.21–6.28	0.04*	2.18	-0.71–5.06	0.14
ROSH report involving neglect (Yes/No)	-1.74	-6.07–2.60	0.43	-1.51	-4.63–1.62	0.34
K10 cut-off (moderate) ref (low)	-0.23	-4.18–3.71	0.91	0.30	-2.80–3.39	0.85

[15] Tests to confirm if the data met the assumption of collinearity (Tolerance, VIF) indicated that multicollinearity was not a concern for any of the models. Test were also done to ensure the regression did not violate the Gauss-Markov conditions; in all cases, except the PPVT Wave 3 model for test-retest reliability adjustments, these were identified to be heteroskedastic based on the Breusch-Pagan / Cook-Weisberg test at the 95% confidence level. The method of robust errors was used for heteroskedascity.

[16] The partial eta squared is calculated as the $\eta^2 = \frac{SS_{effect}}{SS_{effect+}SS_{error}}$ which is the ratio between the sum of squares related to the effect of interest and the sum of squares plus the error term. This was estimated using the post-estimation commands in Stata for regression. It should be noted that these estimate did not use the robust standard errors.

K10 cut-off (high) ref (low)	-0.22	-5.93–5.48	0.94	-1.39	-6.89–4.11	0.62
Constant	34.69	19.9–49.5	0.00	26.18	14.1–38.3	0.00
Observations Relative/Kinship	187 (66.31%)	R-squared		Observations Relative/Kinship	175 (67.8%)	R-squared
Observations Guardianship	95 (33.69%)	0.29		Observations Guardianship	83 (32.2%)	0.49

*p<0.05

As can be seen in Table 6, there was no statistically significant difference in the mean Matrix Reasoning WISC-IV scores between the children on guardianship orders and those in relative/kinship care at Waves 3 and 4. This indicates that children who exited on guardianship orders performed similarly in non-verbal cognitive development compared to those children who remained in relative/kinship care.

Table 6: Multiple regression models of post-guardianship Matrix Reasoning WISC-IV standard scores (Cronbach's alpha)

Variables	Wave 3			Wave 4		
	Unstandard-ised coefficient B	95% CI	Sig.	Unstandard-ised coefficient B	95% CI	Sig.
Adjusted Wave 2 WISC scores	0.57	0.42–0.73	0.00*	0.39	0.23–0.54	0.00*
Group (guardianship vs kinship)	-0.48	-1.45–0.53	0.36	-0.19	-1.20–0.83	0.72
ROSH report involving neglect (Yes/No)	-0.88	-2.37–0.61	0.24	-0.04	-1.12–1.05	0.95
K10 cut-off (moderate) ref (low)	-0.24	-1.33–0.85	0.67	0.87	-0.21–1.95	0.11
K10 cut-off (high) ref (low)	-0.23	-1.47–1.01	0.71	0.21	-1.05–1.47	0.75
Constant	4.41	2.29–6.52	0.00	4.94	3.05–6.82	0.00
Observations Relative/Kinship	99	R-squared		Observations Relative/Kinship	90	R-squared
Observations Guardianship	49	0.29		Observations Guardianship	38	0.19

*p<0.05

5 Discussion

This research investigated whether guardianship orders had an impact on children's cognitive development, aiming to inform policy and practice by answering the question of whether children who were automatically transitioned to guardianship orders have better, worse or equivalent cognitive outcomes than those who remained in relative/kinship care. The findings indicate that there is little or no difference in verbal or non-verbal cognitive development between the two groups of children in question. This finding is consistent with Research Report 24-2, which showed that children from the transitioned guardians cohort performed equally well in the socio-emotional outcomes compared to children who remained in relative/kinship care.

For non-verbal ability, children in both groups achieved similar pre- and post-test scores for Matrix Reasoning WISC-IV. This result remains consistent at Wave 3 (short term) and Wave 4 (medium term) after controlling for other factors. There was a small improvement in verbal skills for children on guardianship orders in Wave 3 (short term). However, the improvement did not persist into Wave 4 (medium term). This is not because the verbal skills dropped for the guardianship children at Wave 4, but because children in the relative/kinship placement caught up. While the mean PPVT score increased by only 0.6 points for the guardianship group from Wave 3 to 4, the increase was much higher (3.2 points) for the relative/kinship placement group. As a result, the difference in verbal skills between the two groups diminished at Wave 4.

It is unclear as to why there was a larger increase in the PPVT scores for the relative/kinship group in the medium term. Was that due to the services and support that children and/or their relative/kinship carers continued to receive or the slowdown of cognitive development for children on guardianship orders because of the inadequate ongoing services and support for the transitioned guardians and/or children they care for? Although children from the transitioned guardians cohort are eligible to receive additional support payments for post-guardianship therapeutic treatment, this report did not explore how many of them received those services. However, the finding that guardianship children did not do any better in cognitive ability than the children in relative/kinship care highlights the need for ongoing support for the guardianship children to achieve better cognitive outcomes in the long run.

It is noteworthy that, unlike the new guardians, the transitioned guardians did not go through the suitability assessment process or receive pre-guardianship support or training to build their ability to support children with cognitive difficulties who experienced trauma. This may have contributed to the similar cognitive outcomes between the two groups of children even though guardianship orders are expected to result in greater stability, felt security and relational permanence conducive to children's positive cognitive outcomes. Furthermore, the lack of difference in cognitive outcomes in the short to medium term could be due to the fact that recovering cognitive functions after trauma is a long processnot captured in the POCLS data yet. For these reasons, we caution against drawing the conclusion that guardianship orders do not contribute to improved outcomes

for children. Future research using more waves of the POCLS data using children from both the transitioned and new guardians cohort will help us to better understand the long-term impact of guardianship orders on their cognitive outcomes.

The research is not without its limitations. First, the findings of this research may not be generalisable to all children in OOHC and/or who exit to permanency via guardianship orders. The guardianship cohort used in this sample was not a representative sample of the guardianship population in NSW because they were 'transitioned guardians'. As discussed earlier, transitioned guardians are the cohort arising from the early extension of guardianship orders in 2014 and is comprised of relative/kinship carers who, at the time, had full Permanent Responsibility to Relative (PRR). This analysis has excluded 'new guardians', that is, foster carers who became guardians after 29 October 2014. This sample was used because the updated administrative data on guardianship orders were not available at the time of the analysis. Therefore, the comparative analysis of cognitive developmental outcomes for children on guardianship orders presented in this report does not include children with 'new guardians' who were subject to permanency planning, which assessed guardianship as best meeting their needs.

Many important variables, such as payment support and services received, could not be adequately addressed in this research. Due to data quality issues in the administrative dataset, we were unable to use the guardianship payment variables in this analysis.

Finally, this report looked at the impact of legal permanency on cognitive development only. Evidence indicates that environmental stimuli have a positive impact on language development, and the rich environment required for this is most likely to be achieved within a committed, engaged and loving childcarer relationship. As part of the series, a separate study examines whether guardianship orders impact family relationships between the children, their caregivers and significant others.

6 Implications for policy and practice

The study shows that guardianship orders while securing safe and stable living arrangements for children did not appear to improve their cognitive outcomes in the short to medium term.This finding highlights the importance of DCJ's current initiative to provide post-guardianship financial assistance to transitioned guardians for a wide range of therapeutic interventions, including counselling, occupational therapy and speech therapy to meet the child's need for optimal cognitive development. Additionally, as the transitioned guardians did not receive any casework support prior to guardianship orders (unlike the new guardians), they need to be supported to help children with cognitive difficulties who have experienced trauma.

7 Conclusion

This report provides much-needed insights into children's guardianship pathways and their short- to medium-term cognitive developmental outcomes, especially for the POCLS children who exited right after the legislative reforms in 2014. Future waves of the POCLs data can provide better insights into the long-term outcomes of this cohort and the children from the new guardian's cohort.

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9 Appendix

9.1 Variables from the POCLS data set used in the analysis

Child characteristics:

- Type of ROSH reports prior to entering care – a binary variable (Y/N) was created to reflect the type of reports involving neglect (RI_NEGLECT_A)
- Carer psychological distress was assessed using the K10 (CH_CRR_K10CUT). Scores were categorised as low, moderate, high.

Temperament Measures

- Sociability: Infants (TE_CRR_AT_APPR_INFSCR), Toddler (TE_CRR_AT_APPR_TODSCR), Children (TE_CRR_AT_SOC_CHLDSCR), Adolescence younger than 14 years (TE_CRR_SATI_V1_SCORE), Adolescence 14 years and older (TE_CRR_SATI_V2_SCORE)
- Reactivity: Infants (TE_CRR_AT_IRRIT_INFSCR), Toddlers (TE_CRR_AT_REACT_TODSCR), School Aged Children (TE_CRR_AT_REACT_CHLDSCR), Adolescence (TE_CRR_SATI_NEG_SCORE)
- Persistence: Toddler (TE_CRR_AT_PERSIST_TODSCR), School Aged Children (TE_CRR_AT_PERSIST_CHLDSCR), Adolescence (TE_CRR_SATI_PERSIS_SCORE)

Cognitive Measures

- PPVT (LA_CYP_PPVT_STDSCORE)
- WISC (LA_CYP_WISC_STCSCORE)

9.2 Cognitive outcomes for the sample across waves

Table 6: Summary of PPVT and WISC scores for the sample (n=433) W2 to W4

Measures	Wave 2			Wave 3			Wave 4		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
PPVT	94.4	13.6	20–134	94.9	15.6	20–135	97.0	15.5	20–139
WISC	8.66	3.12	1–16	8.33	2.98	1–17	8.57	2.9	1–17

9.3 Comparison of outcomes pre- and post-guardianship PPVT and WISC outcomes

Figure 3: PPVT scores pre- and post-guardianship

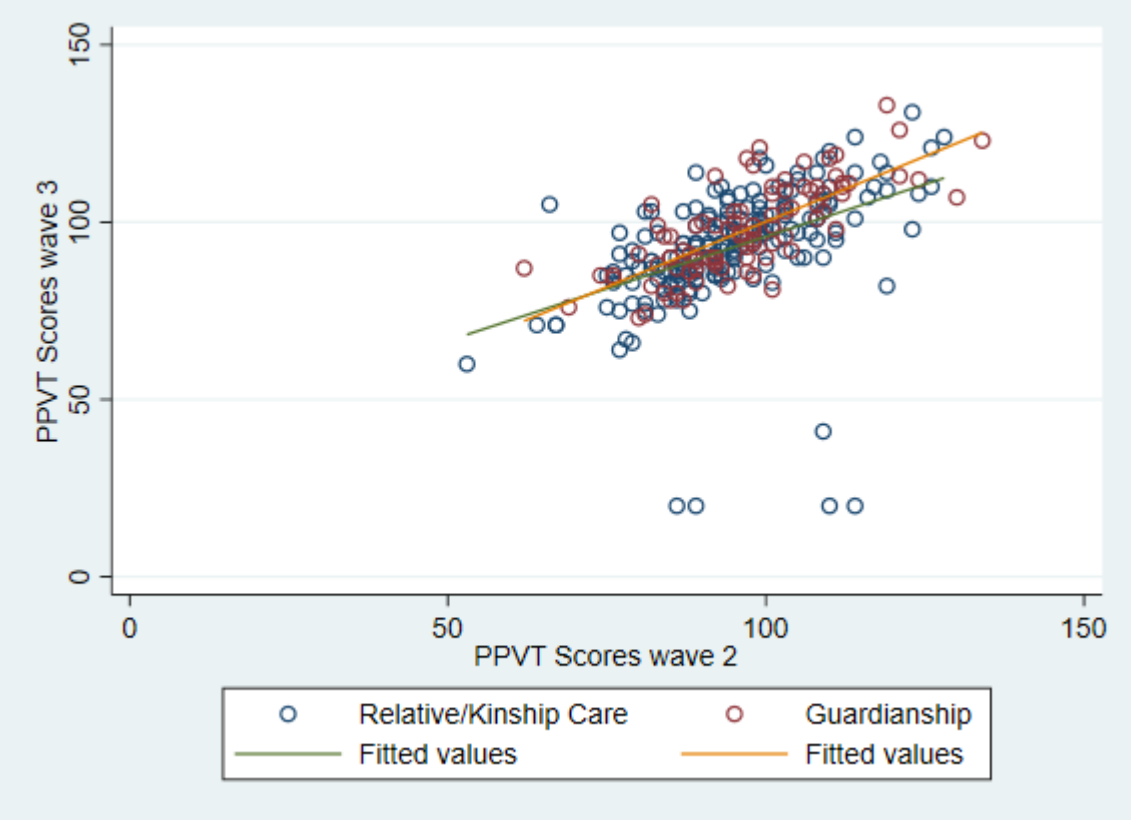
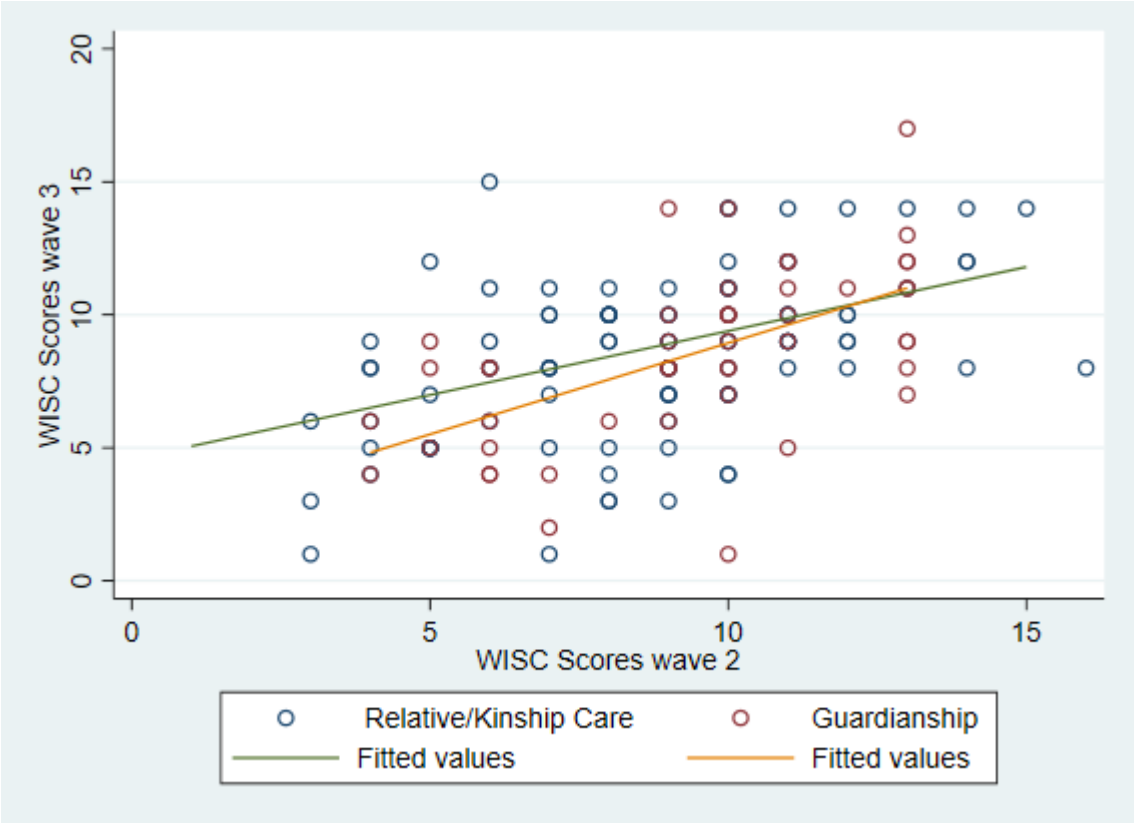


Figure 4: WISC scores pre- and post-guardianship



9.4 Multiple regression models of post-guardianship PPVT and WISC scores using test-retest reliability

Table 7: Multiple regression models of post-guardianship PPVT standardised scale scores (test–retest reliability)

Variables	Wave 3			Wave 4		
	Unstandard-ised coefficient B	95% CI	Sig.	Unstandard-ised coefficient B	95% CI	Sig.
Adjusted Wave 2 PPVT standardised scores	0.63	0.49–0.77	0.00	0.74	0.62–0.86	0.00
Group (guardianship vs kinship)	3.25	0.21–6.28	0.04	2.18	-0.71	5.06
ROSH report involving neglect (Yes/No)	-1.74	-0.61–2.60	0.43	-1.51	-4.63	1.62
K10 cut-off (low)	-	-	-	-	-	-
K10 cut-off (moderate)	-0.23	-4.18–3.71	0.91	0.30	-2.80	3.39
K10 cut-off (high)	-0.22	-5.93–5.48	0.94	-1.39	-6.89	4.11
Constant	34.7	19.9–49.5	0.00	26.2	14.11	38.27
Observations Relative/Kinship	187	R-squared		Observations Relative/Kinship	175	R-squared
Observations Guardianship	95	0.294		Observations Guardianship	83	0.492

Table 8: Multiple regression models of post-guardianship WISC standardised scores (test–retest reliability)

Variables	Wave 3			Wave 4		
	Unstandard-ised coefficient B	95% CI	Sig.	Unstandard--ised coefficient B	95% CI	Sig.
Adjusted Wave 2 WISC standardised scores	0.57	0.42–0.73	0.00	0.39	0.23–0.54	0.00
Group (guardianship vs kinship)	-0.46	-2.37–0.61	0.36	-0.19	-1.25–0.88	0.73
ROSH report involving neglect (Yes/No)	-0.88	-2.37–0.61	0.24	-0.04	-1.53–1.46	0.96
K10 cut-off (low)	-	-	-	-	-	-
K10 cut-off (moderate)	-0.24	-1.33–0.85	0.67	0.87	-0.25–2.00	0.13
K10 cut-off (high)	-0.23	-1.47–1.01	0.71	0.21	-1.21–1.63	0.77
Constant	4.41	2.29–6.52	0.00	4.94	2.85–7.02	0.00
Observations Relative/Kinship	99	R-squared	0.291	Observations Relative/Kinship	90	R-squared
Observations Guardianship	49			Observations Guardianship	38	0.191

9.5 Results for the binary regression model: Factors associated with children's exit to guardianship orders

In order to assess the factors associated with children exiting OOHC to guardianship, a binary logistic regression analysis was conducted. The independent variables were CBCL Externalising Problems scores, carer distress (K10), ROSH report for neglect prior to entry to OOHC, and temperament variable reactivity (reactivity was the only temperament variable statistically significant in the bivariate analysis: t=2.20, p <.05). Results in Table 10 show that ROSH reports for neglect and carer distress levels were significant; hence reactivity and CBCL externalising scores were excluded from futher analysis.

Table 10: Regression model for exit from OOHC to guardianship (n=431)

Factors	Unstandardised coefficient B	Exp (B)	Sig	95% CI
ROSH reported issue for neglect (Yes/No)	-0.79	0.10	0.00	0.29–0.71
CBCL Externalising score	-0.01	0.99	0.23	0.97–1.01
Carer distress (K10) (low)				
Medium	0.74	2.09	0.01	1.25–3.50
High	-0.60	0.55	0.21	0.22–1.40
Reactivity	-0.14	0.87	0.26	0.68–1.11
Constant	0.67	1.95	0.12	0.84–4.53

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