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## Trajectories for children and young people who experience out of home care: Examining the influences of pre-care characteristics on later wellbeing and placement stability

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### ABSTRACT

**Background:** Interplay of risk and protective factors influence longer-term outcomes for children in out-of-home care.

**Participants and setting:** Pathways of Care Longitudinal Study (POCLS) data were used to explore how child and birth family factors interact to influence wellbeing and placement stability over time.

**Methods:** Cluster analysis identified three groups of children differentiated on demographic characteristics on entry in care. Latent growth curve modelling was used to compare changes in children's cognitive functioning, socio-emotional wellbeing, and health over time.

**Results:** There were cluster differences in trajectories for cognitive and socio-emotional outcomes, but not for health. Children who were older at entry to care (mean 7.6 years) showed the poorest socio-emotional and cognitive functioning at Wave 2, and despite improvements by Wave 4, the poor starting point may explain why their cognitive functioning scores never catch up to children entering care younger (mean 1.5 years). Younger on entry children who also tended to come from less socio-economically disadvantaged backgrounds showed the most positive cognitive and socio-emotional functioning over study waves, and cognitive functioning for these children improved at a steeper rate than the other clusters. Children with multiple characteristics associated with risk of poorer outcomes showed little improvement in cognitive functioning over time, and the poorest socio-emotional wellbeing by Wave 4. Placement changes between waves were lowest for children who entered care younger.

**Conclusions:** This study explicates the role of early risk and protective factors on subsequent trajectories for children in care. Understanding how early risk and protective factors impact longer term wellbeing may help to better target placement and support for cohorts of children with different presentations at entry to care.

### 1. Introduction

In Australia, around 46,000 children and young people (hereon 'children') are estimated to be living in out-of-home care, with approximately 8 in every 1000 children living in care in 2020 ([Australian Institute of Health and Welfare AIHW, 2021](#)). The rate of children in care is much higher for Aboriginal and Torres Strait Islander children – 1 in 18 ([Australian Institute of Health and Welfare AIHW, 2021](#)). In the state of New South Wales (NSW), the rate of children in care is slightly higher than the Australian average, with

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## 9.1 children in care per 1000 (Australian Institute of Health and Welfare AIHW, 2021).

### 1.1. Longitudinal outcomes for children in out-of-home care

While not solely attributable to experiences during out-of-home care, children in out-of-home care are at greater risk of adverse life outcomes (Gypen et al., 2017; Stein, 2006). For example, mental health and wellbeing outcomes for some children who have experienced time in out-of-home care are poorer than for children in the general population (Cashmore et al., 2007; Ford et al., 2007; Turney & Wildeman, 2016). In their systematic review of 32 quantitative studies, Gypen et al. (2017) concluded that children who had experienced out-of-home care tend to have poorer long-term outcomes related to education, employment, income, housing, health, substance abuse and criminal involvement compared to children who do not experience out-of-home care. Other research attests that children who experienced care are more likely than children who have not been in care to have poorer educational attainment, lower rates of post-school education, to be young parents, be homeless, have increased risk of unemployment, offending and mental-health problems (Cashmore et al., 2007; Mendes, 2009; Stein, 2006). Children who have been in care are also more likely to have poorer emotional wellbeing (Buchanan, 1999), to be involved in the criminal justice system (Senate Community Affairs References Committee, 2004; Yang et al., 2021), to have less housing stability and greater homelessness (Dixon, 2008), and to experience chronic health conditions and morbidity (Barth & Blackwell, 1998; Chaichati et al., 2020).

Nonetheless, not all children placed in out-of-home care fare poorly. For some, the trajectories of change in indicators of wellbeing are improved over their time living in care. For example, in her report on findings from a five-year longitudinal study of 59 Australian children living in foster care, Fernandez (2008) reported that despite some early signs of difficulty and vulnerability, after a year or two of placement, the children were showing 'encouraging signs of increased stability and positive change' (p. 151). Protective factors are likely to play a role here. Certain pre-existing or emerging child characteristics or living conditions may help to ameliorate the risk of adverse outcomes associated with children's removal from the care of their birth parents. Stability in placement has been identified as a key protective factor linked to better wellbeing outcomes for children in care (Fernandez, 2019; Herrenkohl et al., 2003; Pecora, 2010; Rubin et al., 2007). For instance, fewer placement changes have been associated with fewer behaviour problems among children exposed to out-of-home care (Newton et al., 2000; Ryan & Testa, 2005; Wells et al., 2020).

### 1.2. Factors influencing longitudinal outcomes for children in out-of-home care

It is likely that the complex interplay of child characteristics and of various risk and protective factors early in the child's life play a vital role in longer-term outcomes for children exposed to maltreatment and placed in care. Variables such as child health, cognitive functioning, socio-economic disadvantage, and age on entry to care have all been identified as influencing later wellbeing among children with care experience.

Some research supports the view that age of the child on entry into care predicts longer-term wellbeing (e.g., Dubowitz et al., 1993). In their systematic review of the literature, Pritchett et al. (2013) reflect on the variability on the association between age and outcomes, although they conclude that the weight of the evidence supports the view that children entering care later in age fare worse than those entering care at a younger age. Explanations of the mechanism underlying this association include the longer exposure to maltreatment in their family of origin for children entering care at an older age (e.g., Tarren-Sweeney, 2008). Furthermore, it may be that older children who have emerging behavioural or emotional problems are more likely to be placed in care than same-age peers without such problems; this distinction is less likely to be observed for younger children as they may be too young to have developed observable behavioural problems.

International research suggests a large proportion (up to 1 in 3) of children in care have physical or cognitive disabilities (Slayter, 2016). In Australia, official data sources indicate approximately 15 % of children in care have a disability (Australian Institute of Health and Welfare AIHW, 2021), although definitional differences across jurisdictions exist and the proportion is likely to be much higher if a broader conceptualisation of disability is applied. While the evidence about wellbeing outcomes for children with disability in out-of-home care is limited (Fuentes-Peláez et al., 2022), some research has explored the differences in outcomes for children in care for those with and without a psychiatric, intellectual or physical disability. Anttil et al. (2007) found significantly poorer economic and health outcomes among children with disability who had experienced foster care compared to those without disability in foster care.

A large body of research has explored the association between indicators of family socio-economic status, poverty, economic hardship and neighbourhood disadvantage (e.g., community safety) and child abuse and neglect and entry into care (Coulton et al., 1995; Drake & Pandey, 1996; Lefebvre et al., 2017). A smaller body of research has found an association between socio-economic status and long-term outcomes for children in care. Moore and Ramirez (2016) reflect on the role of neighbourhood characteristics as a protective factor which may moderate the impact of adverse childhood experiences (including maltreatment and care) on child outcomes. Their study explored how the effect of a range of adverse childhood experiences such as abuse, poverty and exposure to family violence among US adolescents can be ameliorated by protective factors such as living in a safe neighbourhood, attending a safe school, and parental monitoring of peer interactions (Moore & Ramirez, 2016). Evidence about the importance of these types of protective factors supports the rationale for early intervention and prevention strategies in order to reduce entries into care by supporting birth families to remain intact.

Although limited, evidence also indicates that in Australia, children with an Aboriginal or Torres Strait Islander (hereon 'Aboriginal') background are particularly at risk of poor long-term outcomes following care (Delfabbro, 2018; Mendes et al., 2022). For instance, a report on the first three waves of the POCLS dataset indicated that Aboriginal children with time in out-of-home care were nearly twice as likely to have clinical level externalising behaviour problems than children in the general population, while non-

Aboriginal POCLS children were only 50 % as likely to have such concerns (Delfabbro, 2018). Cognitive outcomes were also poorer among the Aboriginal POCLS children compared to non-Aboriginal POCLS children. The mechanism of impact here is likely to be via the consequences of colonisation, past attempts at assimilation (e.g., through the *Stolen Generations*) and inter-generational trauma experienced by Aboriginal people (Mendes et al., 2020). Thus, the inter-generational exposure to traumatic experiences, paired with care that does not meet the cultural connection needs of children, may place Aboriginal children at increased risk of poor outcomes from out-of-home care.

Some researchers have hypothesised that the negative emotional consequences of having experienced early maltreatment by a parent can lead to an increased likelihood of mental ill-health (Mendes et al., 2011). Combined with past exposure to abuse or neglect, experiences while in out-of-home care are likely to play a role in later outcomes (Mendes et al., 2011; Orme & Buehler, 2001; Redding et al., 2000). Thus, in addition to the contribution of pre-existing risk factors such as disability and early financial hardship, exposure to maltreatment early in life is thought to influence later socio-emotional and cognitive outcomes for children who have experienced out-of-home care. Furthermore, the quality of the out-of-home care experience is thought to influence child wellbeing. Quality may be characterized both by aspects of the caregiver-child relationship (and indeed, relationships between the child and other adults and children in the out-of-home care situation, sibling placements, services and supports to carers, birth family contact with the child, connections to culture, and childcare and school factors), but also by the type and duration of placement(s) and number of placement changes the child experiences.

### 1.3. Placement stability

Early life risk and protective factors can predict the quality and consistency of care received by children in out-of-home care. This is important as research indicates placement type and stability plays a role in influencing longer-term wellbeing outcomes.

There is sufficient evidence to suggest that placement stability is a desirable goal for children in care as it is generally associated with better outcomes over time (Fernandez, 2019; Pecora, 2010; Wells et al., 2020; Wulczyn & Chen, 2017). In an Australian study of children in care, Fernandez (2019) found improvements in adaptive functioning and socio-emotional wellbeing after children had two years of stable placement. Other Australian research supports this finding that children in out-of-home care have poorer educational outcomes than children not in care (AIHW, 2015; CREATE Foundation, 2006), with some noting that the critical factor in this difference is the coincidence of school change that comes with placement change (Osborn & Bromfield, 2007).

The international literature identifies a range of factors influence placement stability, including child age, ethnicity, disability, health and behavioural difficulties, reasons for placement, contact with birth family and siblings, the quality and type of out-of-home care, as well as the relationships between children, carers, caseworkers and birth parents (e.g., Oosterman et al., 2007; Pritchett et al., 2013; Wells et al., 2020; Winokur et al., 2018; Wulczyn & Chen, 2017).

The weight of evidence supports the view that age of the child on entry into care predicts placement stability (Oosterman et al., 2007; Pritchett et al., 2013; Wells et al., 2020; Wulczyn & Chen, 2017). In their review of factors associated with positive outcomes from out-of-home care, Pritchett et al. (2013) report how the weight of evidence suggests children placed into care at a younger age are more likely to achieve permanent placement, although some studies do not support such an age effect. Some large-scale research has found a higher likelihood of adoption for children who enter care as young children (e.g., Neil et al., 2019; Snowden et al., 2008), increased likelihood of re-entry into care for older children (Yampolskaya et al., 2011) and lower rates of reunification for older children (see Hayward & DePanfilis, 2007).

An emerging body of evidence also indicates that in Australia, Aboriginality is associated with lower levels of placement stability. Although not published in a peer-reviewed format, McDowall (2013) reported results of a survey of 1069 care experienced young people, and concluded that Australian Aboriginal children in out-of-home care experienced greater placement instability than non-Aboriginal children. The Aboriginal Child Placement Principle clearly states a continuum of preference for placement of Aboriginal children with kin, with their Indigenous community, or with other Aboriginal people where family or community placement is not an option (Arney et al., 2015). A perverse consequence of this is often that Aboriginal children are placed at some geographic distance from kin and their original community, as appropriate carers cannot be identified within the family or community of origin (see Walsh et al., 2018).

Some research suggests that children with disability remain in care longer, are at greater risk of inappropriate placement, have increased rates of placement instability and are more likely to enter care than other children (Baker, 2007; Greenen & Powers, 2006; Hill, 2012). Nonetheless, in their systematic review of the literature regarding factors related to placement disruption, Pritchett et al. (2013) found that a third of studies included in their review found children with disability had an increased chance of positive placement outcomes (i.e., stability). Their review found the other two-thirds of studies reported increased risk of negative placement outcomes, including re-entry into care after reunification, greater number of placement moves and reduced chance of reunification (Pritchett et al., 2013).

### 1.4. Mechanisms of effect of risk and protective factors on longer-term outcomes for children in out-of-home care

Through their review of the literature regarding key factors known to influence outcomes for children in out-of-home care, Walsh et al. (2018) concluded that the quality of the care experienced by children while in out-of-home care is a major predictor of later outcomes, and that it is the interaction between risk and protective factors that affects child outcomes, rather than the individual factors on their own. It is the complex interplay between pre-care circumstances, demographics, and aspects of the out-of-home care context which led Walsh and colleagues to conclude that ‘...children’s trajectories through the care system are determined by

interactions between the different risk and protective factors over the course of their placement. It is these interactions, rather than the factors themselves, which are likely to have the greatest impact on children's wellbeing over time.' (p. 15).

Notwithstanding the likely negative impact of multiple placement changes over a child's care journey, it can be difficult to disentangle the concomitant influence of a child's pre-placement circumstances on outcomes from out-of-home care (Maclean et al., 2017; Newton et al., 2000). As outlined above, evidence supports the view that factors such as child disability, age of the child on entry into care, cultural background and family disadvantage are associated with both placement changes and a child's later psychological, educational and personal functioning. The current study may provide evidence that starts to disentangle the various influences on longitudinal functioning of children exposed to out-of-home care, by separating out some of the key early indicators of poor outcomes and examining their influence on placement stability and developmental outcomes.

Despite the likely role of pre-placement conditions on within-placement experiences as well as on later outcomes, it is possible that some of the negative attribution of out-of-home care on child wellbeing is the result of selection bias. That is, children with higher levels of developmental, emotional, social and behavioural difficulties may be more likely to be placed in care (Cuddeback, 2004; English et al., 2015). However, some research supports the view that children who have experienced out-of-home care are more likely than other cohorts of disadvantaged children to experience poor long-term outcomes (Ford et al., 2007; Lima et al., 2018). For example, Lima et al. (2018) compared physical and mental health, school achievement, and justice and child protection outcomes for over 2000 Australian children who had experienced out-of-home care, with two other groups of Australian children, including a control group who were matched to the out-of-home care group on relevant demographics, including age, socioeconomic status at birth, gender and Aboriginality. Using linked data, the authors demonstrated that the out-of-home care group had significantly poorer outcomes by early adulthood in hospitalisations, mental ill-health, self-harm, educational achievement, university attendance and incarcerations, compared to children who have experienced similar types of disadvantage.

Some of the negative associations between demographic characteristics and child outcomes for children in out-of-home care may be direct, as well as potentially being mediated by placement factors. So, for example, early behaviour problems may influence the development of later mental health and criminal justice outcomes, while indicators of placement quality (e.g., stability in placements, child-carer relationships) may also influence later socio-emotional and behavioural outcomes. Maclean et al. (2017) highlight the need for caution in attributing causality in relation to conclusions about educational performance (in this case reading achievement) of children in out-of-home care. In their analysis of population level linked data in Western Australia, they noted reading scores for children in out-of-home care were influenced by type of placement and placement stability, but that a dose-response for multiple placement changes was not evidenced, and that complex interrelationships between a child's placement history and child, family and neighbourhood demographics were associated with children's educational outcomes. Drawing a similar conclusion about the complexity of the relationships between pre-placement risk factors and in-placement experiences, a US linked data study (Frerer et al., 2013) found pre-placement educational risk indicators and school quality to be more reliable predictors of later academic performance than child characteristics such as cultural background, socioeconomic status or disability.

Thus, there are still some areas of conjecture in the literature regarding the pathways of influence of pre-care experiences, child and family demographic and personal characteristics, placement experiences and later socio-emotional, health and wellbeing outcomes for children who have experienced out-of-home care. Not only are the directions of associations sometimes in question, but also whether pathways hold for particular subgroups of children. For example, the literature is unclear about the role that child disability plays in models of outcomes from out-of-home care. Some research suggests child disability is associated with placement instability (Helton, 2011; Lin, 2012), while other research indicates that placement stability is rates are similar to other children in out-of-home care who do not have disability (Steen & Harlow, 2012; Strijker & Van De Loo, 2010). For other subgroups of children, little is known about the mechanisms of effect for children in out-of-home care. For instance, in Australia, few empirical studies have explored the role of culture or ethnicity in the interplay between pre-care factors, placement factors and longer-term outcomes for children and young people in out-of-home care, particularly for children with an Aboriginal cultural background (O'Donnell et al., 2019). Further, the influence of contact with siblings (either through co-placement or visitations) and with birth parents is not well understood, with some evidence of benefit, but some evidence of null and even negative effects (DiGiovanni & Font, 2021). For example, Cashmore and Taylor (2020) note that while many children in out-of-home care report having regular and generally positive contact with birth families, from the carers' perspectives, the value of this contact is variable, with some reports of adverse impacts for children's behaviour and psychological wellbeing, especially from foster or non-kin carers.

Acknowledging these gaps in knowledge about the interplay between pre- and early-care characteristics, placement experience and later outcomes, the current article addresses the question of how do child risk and protective characteristics on entry into care relate to trajectories of change in child wellbeing and functioning over time.

The specific aims of this study are to:

- Identify subgroups of children in out-of-home care distinguishable based on child and family demographic and personal factors identified by others as playing a role in longer term outcomes for children in out-of-home care
- Explore how these factors (i.e., via the subgroups) are associated with a range of outcomes and trajectories of these outcomes over time.

## 2. Method

### 2.1. Study design

The Pathways of Care Longitudinal Study (POCLS) is a prospective multiple wave study of children who have experienced out-of-home care who were living in the state of NSW in Australia at the time of initial placement. The study collects detailed information on children's safety, permanency and wellbeing from different informants (e.g., the child, their carers and teachers, and child protection caseworkers), and also draws on linked data from existing administrative datasets maintained by government agencies, such as hospital and police records, child protective services, and education. These data are collected at approximately two-yearly waves until the child reaches 18 years of age, with data from the first four waves analysed in this paper (collected between 2011 and 2018). Linked administrative data about study participants is also available, including after participants turn 18 years of age. Further detail about the POCLS is available in the introductory article to this special issue.

### 2.2. Sample characteristics

The POCLS sample is made up of 2828 NSW children who had entered out-of-home care for the first time between May 2010 and October 2011, and who by 30 April 2013 had received final Children's Court care and protection orders. The age range for these children at Wave 1 was 9 months to 17 years. Of these 2828 children (referred to as the 'POCLS final orders cohort'), 962 had carer-interview data at Wave 4 and were included in the analyses for this article (age range at Wave 4 was 5 to 17 years). The decision to use only those cases with Wave 4 carer-report data was based on the aim of this article to measure long-term outcomes. There were no major differences in demographic characteristics of the 962 children included in these analyses, compared to the 2828 'final orders' children in the broader POCLS sample (see [Australian Institute of Family Studies, 2017](#)).

The demographic characteristics and pre-placement experiences of the 962 children are presented in [Table 1](#). Close to a third were Aboriginal, one in five had a disability, and there was a roughly 50 % split of males and females in the sample. The average age at which the children entered out-of-home care was approximately two and half years and ranged from birth to 17 years of age. The average age at which initial reports of risk of significant harm (ROSH) to the child were made was in the first months of the child's life (range: pre-birth to 9 years). The mean number of ROSH reports made about a child pre-first entry into care was 7.85 (SD = 7.643; range: 0–49 reports). The reason underlying ROSH reports made prior to first entry to care varied, with close to half of the children predominantly reported for multiple types of abuse or neglect, while a quarter were predominantly reported for neglect only and 22 % for physical abuse. Much smaller proportions of children were referred predominantly for emotional/psychological abuse (4.2 %) or sexual abuse (<1.0 %) only. On average, the most common care arrangements in the first episode of out-of-home care was care by relatives or kin (45.3 %) or foster care (44.4 %).

### 2.3. Measures

Carer-report and administrative records provided information about demographic characteristics of study children, including child age on entry to care, whether the child was flagged as having a disability and whether they were identified as being Aboriginal.

The *Index of Relative Socioeconomic Disadvantage (IRSD)* from the Socio-Economic Indexes for Areas ([Australian Bureau of Statistics](#),

**Table 1**  
Demographic characteristics of the child sample for analysis (N = 962).

Characteristic	Value
Age at entry into care (years), <i>M (SD)</i>	2.47 (2.977)
Male, <i>n (%)</i>	484 (50.3 %)
Aboriginal or Torres Strait Islander children, <i>n (%)</i>	344 (35.8 %)
Neighbourhood disadvantage (IRSD <sup>a</sup> score), <i>M (SD)</i>	966.79 (72.719)
Has a disability, <i>n (%)</i>	181 (18.8 %)
Age of first maltreatment report prior to care entry (years), <i>M (SD)</i>	0.17 (1.571)
Number of ROSH <sup>b</sup> reports prior to first entry into care, <i>M (SD)</i>	7.85 (7.643)
Predominant type of issues assessed prior to entry into care, <sup>a</sup> <i>n (%)</i>	
Physical only	211 (21.9 %)
Sexual only	7 (0.7 %)
Neglect only	239 (24.8 %)
Emotional/psychological only	40 (4.2 %)
Mixed maltreatment issues	462 (48.0 %)
Predominant care type in the first out-of-home care period, <sup>b</sup> <i>n (%)</i>	
Foster care	427 (44.4 %)
Relative & Aboriginal Kinship Care	436 (45.3 %)
Other (residential care, non-related person, parents)	38 (4.0 %)

*Note.* IRSD = Index of Relative Socioeconomic Disadvantage, using 2011 estimates for postcodes; ROSH = risk of significant harm.

<sup>a</sup> Missing data for *n* = 3.

<sup>b</sup> Excluding respite and placements lasting <7 days.

2016) was used to provide an indication of neighbourhood-level socio-economic status (SES), based on the child's postcode at the wave at which this information was first made available for each child. IRSD scores are Australia-specific composite scores based on weighted values of 31 indicators of well-being (e.g., income, unemployment, occupation and education). Area scores have been standardised to a distribution with a mean of 1000 and a standard deviation of 100, whereby roughly two-thirds of Australian areas have scores between 900 and 1100 (Pink, 2008). Low IRSD values indicate areas of relative disadvantage, and high values indicate areas of relative advantage. The validity of the IRSD scales has been established (Australian Bureau of Statistics, 2001). Estimates for IRSD scores are available for postcodes at multiple timepoints, including 2011 and 2016. Given Wave 1 data for POCLS was collected for children entering care in the period between May 2010 and October 2011, the 2011 IRSD estimates for postcodes were used in analyses for the current article. The IRSD score from the first wave that it was available for each child was used as an estimate of SES in the earliest stages of care entry.

The *Peabody Picture Vocabulary Test (PPVT)* Fourth Edition (Dunn & Dunn, 2007) was used to measure child cognitive functioning. PPVT data was collected from POCLS children aged 3–17 years from Wave 1 (NSW Department of Communities and Justice, 2020a). Given many children were not eligible for PPVT testing in Wave 1 as they were not yet aged 3 years (see Table 2), Wave 1 data was not included in LGCM for PPVT scores. The PPVT is an untimed test of receptive vocabulary which is administered by an interviewer. Children are shown a set of four pictures and asked to point to the picture that matches the word spoken by the interviewer. The PPVT is made up of 228-items with the starting points dependent on the child's age. Raw and standardised scores can be calculated with age-standardised scores having a mean of 100 and a standard deviation of 15 points, such that scores above or below 100 indicating how the child's vocabulary compares with same age peers (Dunn & Dunn, 2007).

The *Child Behavior Checklist (CBCL) Total Problems T-score* was used as an indicator of child socio-emotional wellbeing. The CBCL is a widely used and well-validated standardised measure of behavioural and emotional problems in children (Achenbach & Rescorla, 2000, 2001). The POCLS study team recommend using the carer-completed version of the CBCL (NSW Department of Communities and Justice, 2020b), which was usually self-completed by carers, or could be administered in an interview format. While there are versions of the CBCL that are validated and normed for use for children 18 months to 5 years of age as well as for youth 6–18 years, the subscales for each are not equivalent and in Wave 1, CBCL data was collected only for children aged three years and older (NSW Department of Communities and Justice, 2020a). Thus, for this article only CBCL ratings from the 6–18 year old version were used. Consequently, the large amount of missing data at Wave 1 (see Table 2) meant Wave 1 data was excluded from LGCM analyses. The 6–18 year old version of the CBCL contains 120 problem items rated on a 3-point scale (0 = not true, 1 = somewhat or sometimes true, 2 = very true or often true). Item scores are summed to produce a range of subscale scores, including the Total Problems Score which is the sum of all internalising and externalising problems items. Scores can be presented as raw scores or as standardised T-scores, which are considered to usually produce similar results (Achenbach & Rescorla, 2001). Higher scores indicate greater problems and standardised T-scores scores of 64 or above are considered to be in the clinical range.

The single item 'In general, how would you rate [Study Child]'s current physical health?' was used as an indicator of the child's general health. This item was originally developed by the NSW Public Health Service and was responded to on a 6-point Likert scale (1 = Excellent, 2 = Very good, 3 = Good, 4 = Fair, 5 = Poor, 6 = Very poor) where lower scores reflect better health. Ratings are made at each wave by the child's current carer.

NSW Government administrative records regarding *placement moves* provided data about the number of placement changes that occurred for each child between each study wave.

## 2.4. Data analysis

All analyses were conducted with unweighted data using the Statistical Package for the Social Sciences version 23.0 (SPSS; IBM Corp., 2015), and AMOS (Arbuckle, 2014). A two-step approach to data analysis was used. In Step 1, cluster analysis was used to identify sub-groups of children in the sample who could be grouped together meaningfully based on pre-placement or early in placement characteristics associated with risk of poor outcomes from out-of-home care. Then in Step 2, latent growth curve modelling (LGCM) was used to explore how these clusters differed in trajectories of change in cognitive, health and socio-emotional outcomes for children in out-of-home care over the first four waves of the POCLS, and how the clusters differed in patterns of placement stability over time.

This article used data from Waves 1–4 from the November 2020 version of carer interview data (for child wellbeing variables), the

**Table 2**

Means, SDs, percentages and univariate tests for IRSD, aboriginality, disability and age at care entry for the three clusters of children.

Variable	Total (N = 962)	Older at entry (N = 211)	Multiple risk factors (N = 379)	Younger at entry, higher SES (N = 372)	F(8,1912)	p	$\eta^2$
IRSD decile, M (SD)	4.82 (2.334)	4.21 (1.973)	3.23 (1.558)	6.80 (1.645)	437.049	<0.001	0.477
Aboriginal children, n (%)	344 (35.8 %)	62 (29.4 %)	214 (56.5 %)	68 (18.3 %)	70.913	<0.001	0.129
Child has a disability, n (%)	181 (18.8 %)	28 (13.3 %)	131 (34.6 %)	22 (5.9 %)	59.583	<0.001	0.111
Age at first entry to care (years), M (SD)	2.67 (3.233)	7.59 (2.445)	1.11 (1.576)	1.48 (1.870)	900.520	<0.001	0.653

July 2020 version of the DCJ administrative dataset (for child demographic data), and the June 2020 version of the DCJ administrative out-of-home care dataset (for placement change data). Complete data was required for items used in the cluster analysis. Only one of the variables used to create the clusters (IRSD) had any missing data ( $n = 108$  missing), which was replaced with the series mean for the sample with Wave 4 data. There was no significant difference between IRSD values pre replacement ( $M = 4.82$ ,  $SD = 2.48$ ) and post replacement ( $M = 4.82$ ,  $SD = 2.33$ ).

LGCM can tolerate missing data over repeated waves (Curran et al., 2010) as it is typically not the same children missing data at each wave. Nonetheless, >40 % missing data at some waves was evident for some variables of interest (see supplementary materials). For example, 60 % of PPVT data and 58 % of CBCL data was missing at Wave 1 due to the age of children at Wave 1, therefore only Wave 2, 3 and 4 data were used for these growth models.

#### 2.4.1. Step 1: cluster analysis

Use of cluster analysis allowed us to explore the interaction between later wellbeing and care experiences. So, rather than just looking at risk and protective factors individually, analyses examined how children with certain groupings of risk and protective factors experience placement, which may lead to the identification of profile groupings of children more or less at risk of adverse outcomes with increased placement instability.

To identify clusters with the greatest degree of within-group similarity and between group differences, children in the sample were classified into clusters, according to key variables identified as being associated with the risk of poor outcomes for children in out-of-home care. That is, children were classified into clusters using the following variables: neighbourhood disadvantage (IRSD decile), child Aboriginality, child disability and child's age at first entry into out-of-home care.

The sample size was adequate for cluster analysis, with over 200 cases per variable. Two related clustering procedures were employed, consistent with the recommendation of Henry et al. (2005). First, agglomerative hierarchical cluster analysis was conducted to identify the appropriate number of clusters in the sample. The complete linkage algorithm based on  $z$  scores was used to cluster cases, consistent with a recommendation for data that is not multivariate normal (Henry et al., 2005) as the distribution of three of the four variables (all except the IRSD indicator) violated the assumption of univariate normality. Then, a  $k$ -means cluster analysis using squared Euclidean distances as a measure of similarity/dissimilarity was used to group cases. Validation of the cluster solution was performed using split-half replication, and multivariate analysis of variance (MANOVA) with follow-up univariate analysis of variance (ANOVA) to evaluate associations between neighbourhood disadvantage (IRSD decile), child Aboriginality, child disability, and child's age at first entry into out-of-home care and cluster membership. Furthermore, MANOVA with follow-up univariate ANOVA was used to examine the relationship between cluster membership and child wellbeing at Wave 4 on the PPVT, CBCL Total Problems Scores and child health rating.

#### 2.4.2. Step 2: latent growth curve analysis

To examine the relationship between cluster membership and trajectories of change in child wellbeing outcomes and placement stability over time, LGCM was used. Latent growth curve models have certain advantages over other methods of analysis of change over time. They allow examination of change at the group and individual level; they extend on the interpretive value of two wave change analyses by accounting for variations in change in outcomes over three or more waves of data collection; and they take measurement error into account (DeLucia & Pitts, 2006; Kline, 1998).

First, a latent growth model was created in AMOS to describe the course of each outcome variable of interest for the overall sample across multiple waves of data collection. This involved creating two latent factors, one representing the initial or baseline levels of the variable (i.e., the intercept) and the other representing the slope or the trajectory or change in that variable over time. The intercept factor was set with a fixed loading of 1.0 at each wave, and the slope factor was set with fixed values for each time point. For example, a loading of 0 was set for the Wave 2 PPVT data (as Wave 1 data for PPVT was not included in the analysis, due to extensive missing data at that timepoint), a loading of 1 was set for Wave 3 PPVT data and a loading of 2 was set for Wave 4 PPVT data. Models were estimated using robust maximum likelihood estimation and assessed using the chi-square test and other practical fit indices: Tucker-Lewis index (TLI), the comparative fit index (CFI), and root-mean-square error of approximation (RMSEA). Acceptable model fit was defined as a chi-square  $p > .05$ , values over 0.90 for the TLI and CFI (Bentler, 1990), and values close to or below 0.05 for the RMSEA (Hu & Bentler, 1999).

Following model estimation for the overall sample, multi-group analyses were run for each latent growth model to test for differences in model fit, and to estimate model parameters for each of the three clusters identified in Step 1. For each outcome, a model with all parameters (variances, covariances, residuals) freely estimated between the clusters (unconstrained model) was compared to a model with all parameters forced to be equal between the groups (constrained model). A chi-square difference test was used to determine whether the trajectories differed significantly between the clusters.

### 3. Results

Note: The results 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 out-of-home care 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 interpretation and discussion of the implications of the findings (Davis, 2019). The implications for policy and practice should highlight strengths, develop Aboriginal-led solutions and ensure that better outcomes are achieved for Aboriginal people.

### 3.1. Identifying clusters within the sample

Agglomerative hierarchical cluster analysis using the complete linkage algorithm revealed three clusters within the current dataset that best explained the groupings of cases across neighbourhood disadvantage (IRSD decile), child Aboriginality, child disability and child's age at first entry to care. This was based on a significant multivariate effect (MANOVA) with the three-cluster solution, with significant univariate differences between clusters across most variables contributing to the cluster solution (all except disability:  $p = .083$ ). A k-means cluster analysis using squared Euclidean distance with mean values iteratively recalculated after each allocation was performed using the three-cluster solution (see Supplementary Materials Part A for further description of the cluster solution).

Fig. 1 presents the risk and protective factor profiles of each cluster. The largest cluster of children ( $n = 379$ , 39.4 %) identified by the three-cluster solution was labelled 'Multiple Risk Factors' because these children were on average more likely to have a disability and a lower than average IRSD at entry to care, compared to children in the other clusters. Children in this Multiple Risk Factors cluster also tended to be younger at first entry to care ( $M = 1.12$  years of age,  $SD = 1.576$ ), and were more likely to be Aboriginal. A cluster of 372 children (38.7 %), labelled 'Younger at Entry, Higher SES' tended to be young at entry ( $M = 1.48$  years,  $SD = 1.870$ ) and have higher IRSD scores (less socio-economic disadvantage) on care entry compared to other clusters. A cluster of 211 children (21.9 %) labelled 'Older at Entry' tended to have entered care after the early childhood period ( $M = 7.59$  years,  $SD = 2.445$ ).

A MANOVA was conducted on observed values of neighbourhood disadvantage (IRSD), child Aboriginality and disability and age at first entry to care scores, with the three clusters as the factor. A significant overall multivariate effect was found, Wilks' Lambda = 0.134,  $F(8, 1912) = 414.227$ ,  $p < .001$ ,  $\eta^2 = 0.634$ , indicating that 63.4 % of the variability in IRSD, Aboriginality, disability and age of entry into care scores was accounted for by differences between the three clusters (see Table 2). Subsequent univariate ANOVA found significant differences between each possible combination of the three clusters across all four variables.

### 3.2. Association between clusters and wave 4 outcomes

The association between cluster membership and observed values on CBCL Total Problems, PPVT and child health scores were analysed using MANOVA with the three clusters as the factor. A significant overall multivariate effect was found, Wilks' Lambda = 0.933,  $F(6, 1914) = 11.187$ ,  $p < .001$ ,  $\eta^2 = 0.034$ . Thus, while significant, only 3.4 % of the variability in Total Problems T-scores, cognitive functioning and health scores was accounted for by differences between the clusters. Univariate ANOVAs of each child outcome variable at Wave 4 revealed significant differences at  $p < .01$  between the clusters for each variable.

Fig. 2 presents z-score mean values for each cluster across Wave 4 outcome variables. In general, the 'Multiple Risk Factors' cluster had the poorest outcomes at Wave 4 for socio-emotional wellbeing and cognitive functioning, while the 'Older at Entry' cluster had the poorest ratings on child health. In many cases, these differences for the 'Multiple Risk Factors' cluster were significant ( $p < .05$ ) when pairwise comparisons between each cluster were made (i.e., lower PPVT mean scores than the 'Younger at entry, Higher SES' cluster, and greater CBCL Problems scores than the other two clusters). In general, there were better Wave 4 health, cognitive and academic outcomes for the 'Younger at Entry, Higher SES' cluster.

### 3.3. Individual growth curve analyses

Descriptive statistics for the study variables are provided as Supplementary Materials (Part B) to this paper. Mean PPVT scores for the overall sample increased from Wave 1 to Wave 4, while CBCL Total Problem T-scores initially decreased from Wave 1 to Waves 2

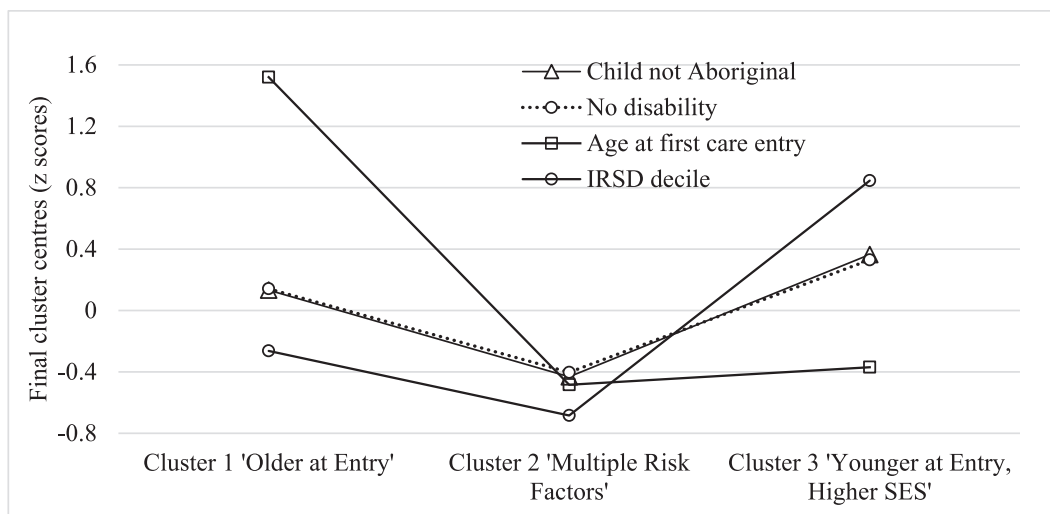


Fig. 1. Cluster centres (Z Scores).



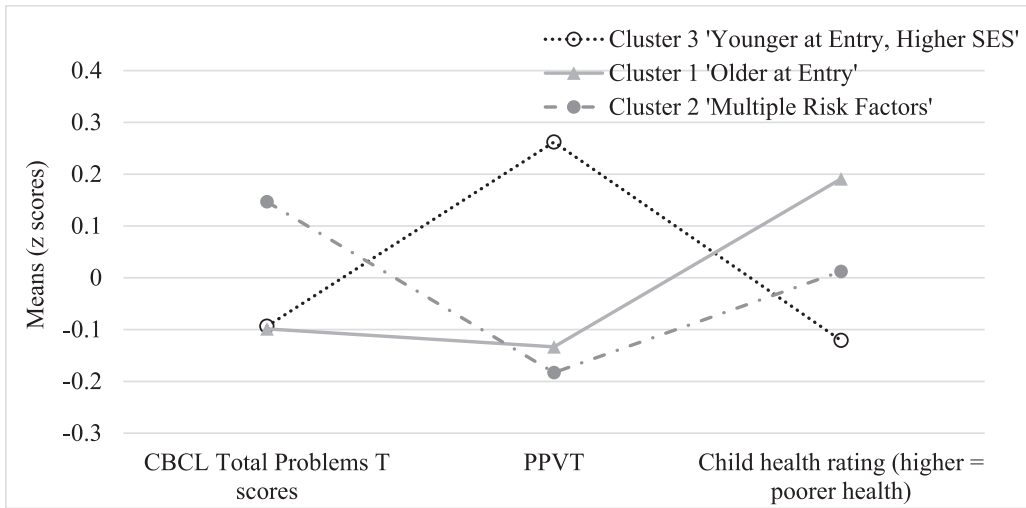


Fig. 2. Mean cluster Z scores across outcome variables at wave 4.

and 3, but then increased again by Wave 4 to approximate Wave 1 levels. Child health ratings on average remained fairly stable for the overall sample over the four waves of the study, with means remaining mid-way between ‘excellent’ and ‘very good’. The mean number of placement changes for the overall sample remained similar across waves.

Statistical and graphical measures of normality revealed that distributions for Total Problems T-Scores and PPVT scores across the waves were generally normally distributed, with exceptions at Waves 1 and 3 for PPVT where scores were slightly negatively skewed. Child health ratings and placement changes between waves were all positively skewed. Correlations among all outcome variables are presented in the Supplementary Materials to this article (Part C). PPVT and CBCL Total Problem scores were moderately correlated at all waves, as were child health ratings and Total Problem scores. Child health ratings showed low levels of correlation with PPVT scores at most waves. Placement changes were moderately correlated with Total Problem scores at each wave, and with health ratings to a lesser extent at some waves.

3.4. Course of child outcomes over time for each cluster

3.4.1. PPVT

Looking at Waves 2, 3 and 4 data (ignoring Wave 1 due to 60 % missing data) for the overall sample, a two-factor latent growth model for PPVT scores was an acceptable fit to the data,  $\chi^2(3, N = 962) = 12.256, p = .007, CFI = 0.99, TLI = 0.97, RMSEA = 0.06, 90\%$  confidence interval [CI] [0.03, 0.09] (see Supplementary Materials Part D for further detail about model fit). Fig. 3 shows the course of PPVT standard scores for the total sample alongside the means for each time point for each cluster. None of the mean PPVT standard scores of the clusters was below 85 (1 SD from the mean of the standardised scores,  $M = 100, SD = 15$ ) at any point (the lowest being 90.8 for Cluster 1 at Wave 2), so the trajectories fall within the normal range of PPVT. Thus, children’s cognitive functioning was on average in the ‘normal range’ for each cluster.

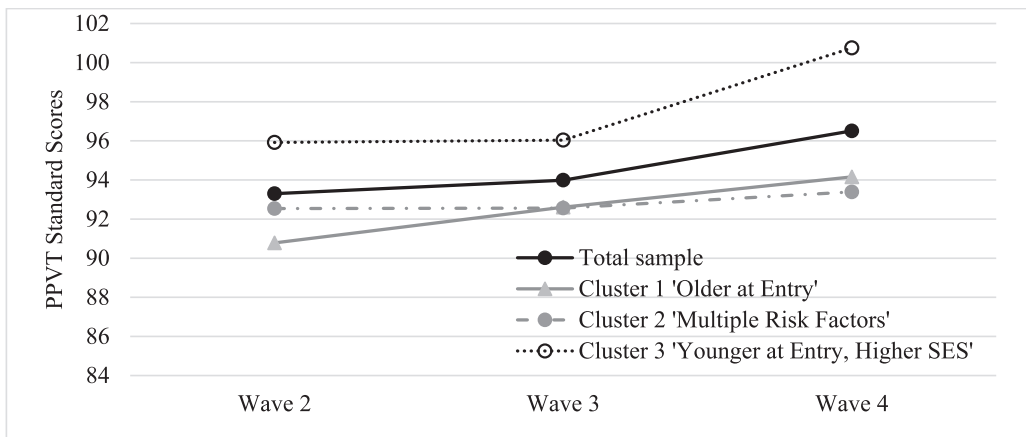


Fig. 3. Mean PPVT scores for the overall sample and each cluster.

Given adequate model fit for the overall sample, model fit and intercept and slope estimates for each cluster were considered (see Supplementary Materials Part D for further detail about model fit for the clusters and about multiple group analyses). The data for Clusters 1 and 3 fit the model sufficiently well to proceed with the use of multi-group analysis of structural invariance. Multiple group analyses revealed significant differences in trajectories of PPVT scores between the clusters. Thus, the trajectories of improvement in PPVT scores can be said to be different for each cluster. As Fig. 3 shows, children who entered care at a younger age and who have higher SES on average, have consistently higher PPVT scores than children in the other clusters and in the overall sample. The cluster of children who entered care at an older age had the lowest PPVT scores at Wave 2, but their PPVT score trajectory at later stages aligned closely with the overall sample, even though a lower starting point at Wave 2 meant their scores never recovered to match the total sample. The ‘Multiple Risk Factors’ cluster of children demonstrated little growth in their PPVT trajectory over waves.

The latent growth models further endorse these findings (see Supplementary Materials Part E for a table with parameter estimates for the latent growth factors for all child wellbeing outcomes). The results indicate that at Wave 2 (intercept) there was little difference in PPVT scores between Clusters 1 and 2, but the ‘Younger at Entry/Higher SES’ Cluster had the highest PPVT scores. Slopes were all positive and ranged between 0.55 (Cluster 2) and 2.31 (Cluster 3), indicating that there was a faster incline in PPVT scores for Cluster 3 (the ‘Younger at Entry/Higher SES’ Cluster), increasing at a rate of 2.31 PPVT points per wave compared with 0.55 points per waves for children in Cluster 2 (‘Multiple Risk Factors’ Cluster). The rate of change (slope) was not significantly different from zero for the ‘Multiple Risk Factors’ Cluster, indicating that PPVT scores do not change substantially over time for these children. Significant variability in PPVT scores at Wave 2 was observed for all clusters ( $p < .001$ ), but there was little within-cluster variability in slopes.

### 3.4.2. CBCL

Looking at Waves 2, 3 and 4 (ignoring Wave 1 due to 58 % missing data), for the overall sample, a two-factor latent growth model for CBCL Total Problem T-Scores was an acceptable fit to the data,  $\chi^2(3, N = 962) = 25.874, p < .001$ , CFI = 0.98, TLI = 0.97, RMSEA = 0.09, 90 % CI [0.06, 0.12] (see Supplementary Materials Part D). Fig. 4 shows the course of mean CBCL Total Problem T-Scores for the total sample and for each cluster over waves of data collection. None of the mean CBCL Total Problem T-scores for the clusters were above 64 (the clinical cut-off) at any point (the highest being 55.7 for Cluster 2 at Wave 4), so the trajectories fall within the normal range of CBCL Total Problem T scores. Thus, children in each cluster on average demonstrated typical socio-emotional functioning over time.

Given adequate model fit for the overall sample, model fit and intercept and slope estimates for each cluster were examined. Multiple group analyses revealed significant differences over waves in CBCL Total Problems T-scores between the clusters (see Supplementary Materials Part D). The trajectories of change in problem behaviour scores are different for each cluster. As Fig. 4 shows, the ‘Younger at Entry/Higher SES’ Cluster and the ‘Multiple Risk Factors’ Cluster both show similar trends towards increasing behaviour problems over time, while the ‘Older at Entry’ Cluster shows a decrease in behaviour problems over time and a flattening of scores by Wave 4, when their scores showed similar means as the best performing cluster – the ‘Younger at entry/high SES cluster’.

The latent growth models (parameter estimates presented in Supplementary Materials Part E) for CBCL Total Problem T-scores indicate the intercepts varied, with Cluster 1 (‘Older at Entry’) having the highest levels of problem behaviour at Wave 2 and the ‘Younger at Entry/Higher SES’ Cluster having the lowest levels of problem behaviour at this time. Nonetheless, the slope of the trajectory for the ‘Older at Entry’ Cluster was negative, although not statistically significant, suggesting a flat trend rather than a decrease in problem behaviour over time. The ‘Multiple Risk Factors’ and ‘Younger at Entry/Higher SES’ Clusters showed increasing behaviour problems over time, at a similar rate of change for the two clusters. Increase in behavioural issues with child age is not unexpected; by

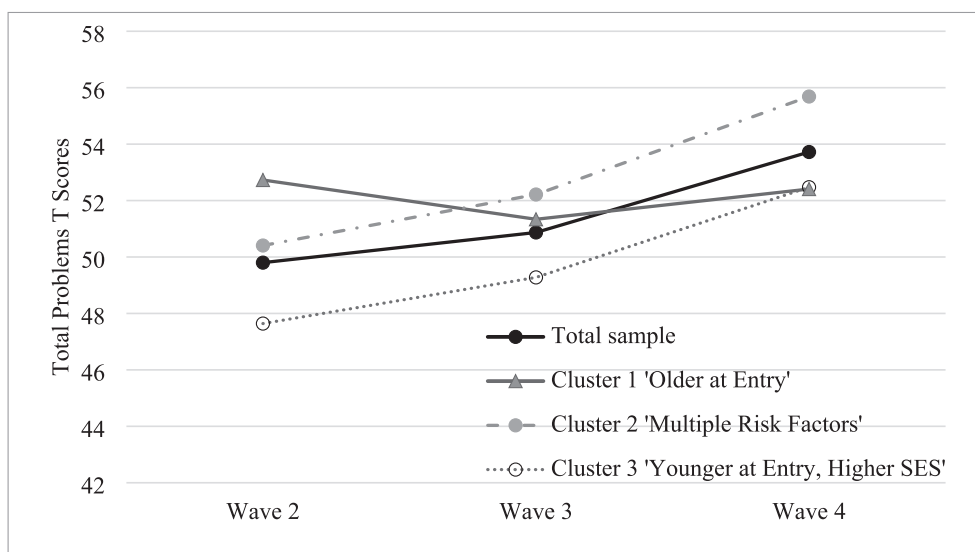


Fig. 4. Mean CBCL total problem T-scores for the overall sample and clusters by wave.

Wave 4 children in these two clusters would be around 5–6 years which is a period developmentally where children can begin to assert themselves more. Specifically, Cluster 2's ('Multiple Risk Factors') problem behaviour ratings increased at a rate of 2.59 points per wave and Cluster 3's ('Younger at Entry/Higher SES') problem behaviour ratings increased at a rate of 2.30 points per wave. The rates of change (slope) were significantly different from zero for Clusters 2 and 3 ( $p < .001$ ), indicating that CBCL scores changed substantially over time for these clusters. Significant variability in CBCL scores at Wave 2 was observed for all clusters ( $p < .001$ ), while there was significant variability in slopes for CBCL scores for Clusters 2 and 3, but not for Cluster 1.

### 3.4.3. Child health

For the overall sample, a two-factor latent growth model for carer rating of child health was an acceptable fit to the data,  $\chi^2(8, N = 962) = 48.761, p < .001, CFI = 0.89, TLI = 0.87, RMSEA = 0.07, 90\% \text{ CI } [0.05, 0.09]$  (see Supplementary Materials Part D). Fig. 5 depicts the child health rating mean scores for the total sample for each time point alongside the means for each cluster.

Given adequate model fit for the overall sample, model fit and intercept and slope estimates for each cluster were examined. Model fit was poor for Cluster 1, but it was excellent for Clusters 2 and 3. Therefore, Cluster 1 was not included in the multi-group analysis of structural invariance. Multiple group analyses comparing the total sample with Clusters 2 and 3 did not support the hypothesis that there would be significant differences in the course of child health ratings over waves. Therefore, the intercepts and trajectories of change in child health ratings can be viewed as similar for these clusters (see Supplementary Materials Part D). As can be seen in Fig. 5, children in each cluster have Wave 1 health ratings close to 1.5 (possible range of ratings is 1 to 6, with higher ratings indicating poorer health) and rate of change in child health is similar across the clusters. Supporting this, the latent growth models (see Supplementary Materials Part E) for child health indicate the slopes were not significantly different from zero ( $p > .05$ ), indicating that child health ratings did not change substantially over time. Looking at the mean scores (see Fig. 5), it appears that all clusters show an improvement in health at Wave 2, yet this is only very slight for the 'Younger at Entry/Higher SES' Cluster, who then show a further improvement in health at Wave 3 and a decline in health at Wave 4. Mean scores for all clusters show a decline in health by Wave 4. Child health is best at each wave for the 'Younger at Entry/Higher SES' Cluster, and is poorest at each wave for the 'Older at Entry' Cluster.

### 3.4.4. Change in placement moves between waves

For the overall sample, a two-factor latent growth model for placement moves between waves was not an acceptable fit to the data,  $\chi^2(3, N = 962) = 53.375, p < .001, CFI = 0.82, TLI = 0.82, RMSEA = 0.13, 90\% \text{ CI } [0.10, 0.16]$ . Given poor model fit, we did not proceed with multi-group analysis for the growth model. The average number of placement moves per child between Waves 1 and 2 was 0.59 for the overall sample, and this did not vary substantially from mean placement moves for the 'Multiple Risk Factors' and 'Younger at Entry/Higher SES' Clusters, but the 'Older at Entry' Cluster showed a higher rate of placement change ( $M = 0.79$ ) between Wave 1 and Wave 2. The rate of change over time in mean placement moves did decrease for this 'Older at Entry' Cluster (to a mean of 0.73 moves between Waves 3 and 4), while the mean increased slightly for the 'Multiple Risk Factors' cluster and remained stable for the 'Younger at Entry/Higher SES' cluster.

## 4. Discussion

This examination affords novel understandings about how pre-entry child and family factors can interact to shape the longer-term

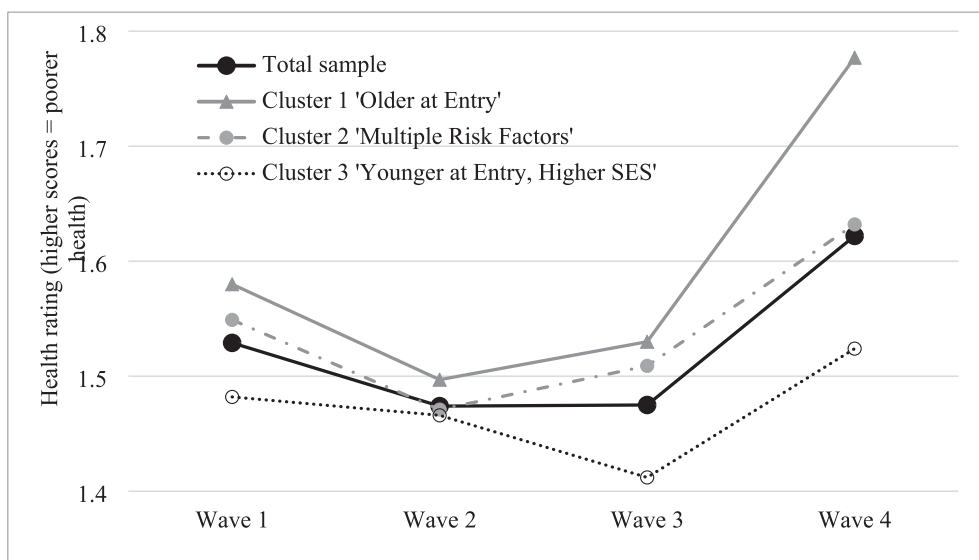


Fig. 5. The course of mean child health ratings for the overall sample and for each cluster.

wellbeing of children in out-of-home care.

#### 4.1. Three distinct clusters of children identified in the sample

Cluster analysis identified three distinct sub-groups of children who varied upon entry to care on key demographic characteristics identified by others (e.g., [Ancitl et al., 2007](#); [Hill, 2012](#); [Moore & Ramirez, 2016](#); [Oosterman et al., 2007](#); [Pritchett et al., 2013](#)) as influencing out-of-home care outcomes. Around one in five (22 %) of the POCLS interview cohort children with Wave 4 data were found to fit best in a cluster appropriately described as being older at entry to care, with members entering out-of-home care at an average age of 7.6 years, compared to a mean age of care entry at 1–1.5 years for other clusters. Around two in five (39 %) of the POCLS children with Wave 4 data fit best in a cluster best described as having multiple risks on care entry, discernible from the other two clusters on a range of characteristics, including greater likelihood of being Aboriginal, greater likelihood of having a disability, and having the lowest rankings in socioeconomic status. Children in the multiple risks cluster were also distinguishable from children in the other two clusters by their age on entry into care – they were the youngest on entry to out-of-home care, with a mean age of 1.1 years at entry. The third cluster of children were also young on entry (mean 1.48 years) but showed none of the other characteristics of the multiple risks cluster. In fact, these children were the least likely of all clusters to be Aboriginal or to have a disability, and they were likely to come from a neighbourhood with a higher socio-economic ranking.

Notwithstanding the importance of viewing each child as an individual with unique histories, strengths and needs, the value in knowing how children can be grouped together based on early context and characteristics, including known risk and protective factors, lies in understanding how children's early life circumstances might influence their future wellbeing. By identifying children with particular early experiences, we can inform choices for their care that promote the likely best options for their future. The current growth modelling findings provide novel value in understanding how trajectories of wellbeing for different clusters of children may influence decisions about care arrangements.

#### 4.2. Trajectories for cognitive and socio-emotional wellbeing differed for each cluster

Our analyses revealed different trajectories for children's cognitive functioning and socio-emotional wellbeing between the three clusters. Children who entered care younger and who also tended to come from higher socioeconomic backgrounds showed higher scores on a test of cognitive functioning and lower levels of problem behaviour (i.e., better socio-emotional functioning) at all waves of data collection, compared to other children with experience of out-of-home care. For cognitive functioning, these children started 'better' and improved at a steeper rate than the other clusters, suggesting that early entry to care may be a positive factor. However, the current study found evidence that in some respects, children who entered care at an older age may fare better in the long term in relation to socio-emotional wellbeing. The improvement in socio-emotional wellbeing for older entry children meant that at Wave 4 their scores were indistinguishable from the younger cluster, and cognitive functioning scores at Wave 4 for those entering care older were slightly better than Wave 4 scores for children in the cluster with multiple Risks at entry. While the older on entry cluster showed some of the poorest results for cognitive and socio-emotional functioning at Wave 2, their scores on both of these indicators of wellbeing improved by Wave 4; significantly so for cognitive functioning scores. The group of children identified as having multiple early risks (which includes being young on entry into care) showed the poorest socio-emotional and cognitive functioning on entry and showed little improvement in cognitive functioning over time, as well as an increase in problem behaviour over time.

The data suggest that on most outcomes measured here children with multiple risk factors prior to their entry to care fare the worst over time while children who were older at entry to care may look the worst at Wave 2 they improve to overtake the multiple risk factors cluster on ratings of cognitive functioning and socio-emotional wellbeing. The younger at entry cluster (who also tended to have higher SES on entry) have mixed results, with improvement in cognitive functioning but a decrease in socio-emotional wellbeing over time.

Importantly, cluster means for PPVT and CBCL scores do not exceed clinical cut-offs for the measures, thus children in each cluster are generally performing within the range of 'typical' functioning. Nonetheless, it is likely that there will be children in each cluster whose scores are within the clinical range (as suggested in the standard error values of the mean intercepts; see Part E of the supplementary materials), and even though the means remain in the typical range, the growth modelling results indicate there are differences in trajectories between the clusters. It will be important to continue to monitor trajectories with subsequent waves of data collection to consider whether mean scores for some clusters proceed into the clinically concerning range (e.g., the CBCL trajectory for the multiple risk cluster).

#### 4.3. Long-term trajectories for child health similar among the clusters

While these analyses have revealed different trajectories for cognitive and socio-emotional functioning among the three groups of children, health trajectories did not differ. Despite this null difference, it is worth noting that all clusters showed poorer health at Wave 4 than at Wave 1 on this carer-reported rating. Notwithstanding the need to confirm findings using a more objective measure of children's physical health, the mean ratings of child health remained in the very good to excellent range for each cluster. Children who were older on entry to care showed the poorest health ratings of all clusters, while those who were younger at entry and with higher SES were given the best health ratings at each wave.

#### 4.4. Interpretation of findings on age of entry into care in context of past research

These findings are somewhat consistent with previous research, although differ in some important ways. For example, our findings challenge the assumption that being older at entry into care is associated with poorer outcomes later in life. Researchers have reported poorer outcomes for children entering care at a later age (e.g., [Dubowitz et al., 1993](#)), and despite mixed findings from their meta-analysis, [Pritchett et al. \(2013\)](#) conclude that on balance children entering care later in age fare worse than those entering care at a younger age. Hypotheses about the underlying reasons include that either children who enter care at an older age have had a longer time exposed to maltreatment in their family of origin (e.g., [Tarren-Sweeney, 2008](#)), or that older children with behavioural or emotional problems may be more likely to be placed in care than older children without emotional or behavioural issues while younger children may be too young to yet develop such difficulties. Our findings suggest that while children who are older on entry to care do indeed show poor wellbeing at Wave 2, by Wave 4 they improved most in cognitive functioning and in socio-emotional wellbeing (but not in physical health). These findings are important, as they challenge the widely held assumption that placing children into care at an older age is risky, and that decisions about child placement and achieving permanency needs to occur when the child is young (e.g., [Tarren-Sweeney, 2008](#)). It will be important to monitor whether children entering care younger also show similarly improved outcomes when they reach 11–12 years of age, and to understand the influence of transitions through stages of life (e.g., moving from infancy to school-age, and the move into adolescence). Also, the length of overall time spent in care may help to explain the greater improvements in functioning for children who enter care older. Children who are older at entry will have spent more time in the care of their families and perhaps have forged stronger attachments to family members, and this may be associated with steeper trajectories of improvement. Notwithstanding the need to investigate these potential correlates of more favourable trajectories of outcomes for children who enter care when older, our findings do challenge the assumption that placing school age children in out-of-home care for the first time adversely affects their developmental outcomes. Children who enter care after the age of six years do show improvements in cognitive functioning and socio-emotional wellbeing, sometimes with results that are indistinguishable from children placed in out-of-home care much earlier in their lives.

Consistent with other research (e.g., [Oosterman et al., 2007](#); [Pritchett et al., 2013](#); [Wells et al., 2020](#); [Wulczyn & Chen, 2017](#)), our data indicate that children who enter care when older experience a higher level of placement breakdown than children who enter care when young. For this older on entry cluster, placement changes were most frequent between waves 1 and 2, suggesting placement stabilisation is most challenging in the initial time period after entry into care if children enter care in middle childhood (mean of 7 years). This was not evident for the other clusters, who had rates of placement change that were more stable across waves. Despite poor model fit for the growth model in our analyses, cluster differences in placement changes clearly indicate a consistently higher rate of placement changes for older children across the waves, while children who were younger and with higher SES at care entry had the lowest rates of placement changes at each wave. Aligned with these associations between an older age at entry to care and more frequent placement moves, other research has found that children who enter care at an older age have a lower likelihood of adoption ([Snowden et al., 2008](#)), lower rates of reunification with the birth family ([Hayward & DePanfilis, 2007](#)), and greater chances of re-entry into care after a period of restoration ([Yampolskaya et al., 2011](#)). Challenges associated with the demands of parenting adolescents are often posited as the main reason for placement instability for older children ([Lipscombe et al., 2003](#)). While the current analyses of data up to wave 4 limit conclusions about the role of the transition to adolescence in placement instability, the current findings extend upon speculations about the reasons for greater instability for children entering care at older ages, by illustrating that children who entered care at a mean age of 7.6 years have a greater average number of placement moves even in the earliest stages of their time in care, with an average of 0.79 moves between Waves 1 and 2, compared to an average closer to 0.53 moves for younger at entry children. Given past research has found that children with previous placement breakdowns are more likely to have subsequent ones ([Webster et al., 2000](#)), it is perhaps not surprising that older on entry children continue to have the highest number of placement changes in subsequent waves. This has important implications for children's longer-term functioning, as repeated breakdowns are likely to have a negative impact on later functioning across multiple domains ([Newton et al., 2000](#); [Sinclair et al., 2004](#)). Our results shed light on the pattern of placement changes over time for different sub-groups of children and have implications for the types of interventions and supports that might be needed for children entering care for the first time at school age, in order to ameliorate the elevated risk of placement breakdown for these children.

#### 4.5. Implications for policy and practice

These findings have implications for understanding how child characteristics and risk and protective factors on entry into out-of-home care may impact on children's development and wellbeing as they move into adolescence and early adulthood.

This study makes a novel contribution to policy. Understanding how characteristics of children's early life (such as their cultural background, socioeconomic disadvantage and disability) are associated with later outcomes, is important for those making decisions about temporary or permanent revocation of birth parents' care responsibilities and about placement changes over the life of the child. For some children (e.g., those experiencing multiple adversities), efforts to support the family to keep the child at home, through parenting support or temporary placement while safety is addressed, may be preferable to a quick decision for permanent placement into alternative care. The observation that children in the 'Multiple Risk Factors' Cluster did not improve substantially in PPVT scores over time, and that their socio-emotional wellbeing and health worsened over the waves of the study, despite having entered care as infants, may indicate a need for greater investment in out-of-home care prevention through targeted early intervention for children with two or more risk factors.

Many of the factors identified in this study as being associated with the clustering of children, are non-modifiable – cultural

background, neighbourhood-level socio-economic disadvantage, and possibly also child disability. As such, our findings provide useful information to inform early decision making about child placement when risk of significant harm to the child is identified. For example, using the Aboriginal Child Placement Principle to consider how culture can create safety and connection for children that affects their wellbeing and quality of care. Moreover, even where pre-care factors may be modifiable (as is potentially true in the case of childhood disability or the age at which a child is placed into care), our findings have implications for the types or intensity of supports and interventions that may be put in place for children identified at risk of harm.

Taken together, findings from the current analysis identify early indicators associated with children's longer-term wellbeing which may help to better target out-of-home care placement and support for cohorts of children with different presentations at the time of decision-making about child placement in care.

These results provide a novel contribution to research by addressing a gap in knowledge about the role of child characteristics and early risk and protective factors on subsequent outcome trajectories for children in out-of-home care. While previous research has reported on the associations between characteristics like age of entry into care, disability, culture and SES with long-term child wellbeing, the current study extends on this research by exploring trajectories of change in outcomes over time.

Nevertheless, the degree to which negative life outcomes are due to experiences and family characteristics prior to out-of-home care or their experiences during out-of-home care is unclear (Wulczyn & Huhr, 2018). Consideration of the building evidence base suggests that quality of the care experienced by children while in care is a major predictor of later outcomes, and that it is the *interaction* between risk and protective factors that affects outcomes, rather than the factors on their own. Future research should endeavour to disentangle the relative influence of pre-care factors from in care factors. The current analysis goes some way to progressing this, by attempting to discriminate variances in change over time in wellbeing indicators for children with different on-entry profiles.

#### 4.6. Limitations and future directions

Methodological limitations relevant to this article relate primarily to the sample used for analyses and include the decision to begin the trajectory for the growth models for PPVT and CBCL at Wave 2 due to missing data at Wave 1. Consequently, the estimates of the intercept for these outcomes do not represent true baselines for the sample overall. Missing data across waves is in part due to the unique nature of the POCLS, which allows carers of children to complete surveys at any wave regardless of whether they took part in a previous wave. This brings advantages (e.g., reductions in sample attrition as carers can opt in and out for each wave) but also means that not everyone who responded at Wave 4 has data at earlier waves. This feature of the POCLS also means that by only including children who have carer-report data at Wave 4 in the current article (in order to examine longer-term outcomes), the sample used for analysis is reduced. Furthermore, the sample includes (from Wave 2) children who have been restored to their parents who may be different to the children remaining in out-of-home care (Steel & Navin-Cristina, 2018), thus, combining these two sub-groups of children increases the heterogeneity of the sample under analysis.

A further methodological limitation relates to the measures and methods used for data collection. PPVT, CBCL and child health ratings were made by the carer of the child at each wave, and therefore may be made by different people at each wave. This could result in different interpretations of items between the individuals completing items for a single child.

A limitation associated with the analysis applied in this article relates to the presence of some non-normal data. Outcomes data are generally normally distributed, with the exception of slight negative skewness in PPVT data at Waves 1 and 3 and positive skewness for child health at each wave and placement changes between waves. AMOS does not have the capability to compute adjusted fit indices to account for non-normal data in LGCM.

This article raises a number of questions which may be addressed in future research. One relates to the role of additional factors that may potentially be influential to longer-term outcomes for children in care beyond the clustering variables used for the current analysis. For instance, there is evidence that parents' trauma histories and their own out-of-home care experiences are associated with the care outcomes of their children (Hopkins et al., 2019; Mertz & Andersen, 2017); which often compels reflections about the processes underlying intergenerational transmission of the legacy of maltreatment experiences.

Furthermore, the current study did not attempt to examine the effect of quality or quantity of out-of-home care on trajectories of child outcomes. While our analyses did examine trajectories of change in placement stability for the different clusters, the specific contribution of exit from care (or restoration) was not accounted for in our analyses. Nor did our analyses examine the influence of different types of care (adoption, kinship, residential, etc.) or of the length of time in placements. Future research should examine how different care experiences interact with pre-care experiences to influence wellbeing into early adulthood, including considerations of the quality and quantity of care, noting that children will be in different types of care (e.g., kinship, foster, group/residential, temporary), with varying numbers of placement changes, and for varying lengths of time.

Our analysis only went so far in disentangling the variable influences of age on entry, disability, Aboriginality and socioeconomic disadvantage on later outcomes for the cluster of children with multiple risks on care entry. It can be seen that these children on average fare more poorly on the indicators of wellbeing measured for this article, but additional analysis is needed to fully understand why they do have poorer outcomes, and to understand how the variables contributing to membership in this cluster interact to impact wellbeing over time. For example, child Indigenous status is not explored in depth in the current analysis, and requires dedicated focus given the over-representation of Aboriginal and Torres Strait Islander children in out-of-home care across Australia. There is much to explore here, including whether the Aboriginal Placement Principle in Australia means that these children are more likely to be adversely impacted by the tendency for more negative outcomes to result from kinship care compared to adoptive care – likely at least partly the result of kinship carers being more poorly trained and supported than foster and adoptive parents, and the possibility that as a group Aboriginal children are likely to experience greater social disadvantages to begin with (Arney et al., 2015; Mendes et al.,

2020). In accordance with the Aboriginal Placement Principle, there are likely benefits of family placement for Aboriginal children as a result of retaining closer connection with their culture. Nonetheless, a better understanding is needed of the relationship between long term child wellbeing and the pre-care risk and protective factors in the lives of Indigenous children. The current study goes some way to understanding this relationship, but only by considering Aboriginality as one of multiple factors influencing care outcomes.

Extensions on the current study should explore other outcomes for children in care, as well as more distal outcomes into adulthood. The POCLS affords a unique opportunity to analyse complex inter-relationships between a range of important indicators of child wellbeing, including psychological distress, justice outcomes (e.g., contact with police incarcerations), injuries, hospitalisations, employment, educational attainment, reunification and permanency of orders, and further waves of data collection would facilitate understanding about longitudinal impacts in adulthood of pre-placement factors and care experiences on wellbeing. Further evidence about the long-term effects of out-of-home care will continue to build the evidence base about who fares better in particular care arrangements, and where and when additional intervention might be needed for different sub-groups of children in care.

Future research can extend on the analyses and findings described in this article by exploring how placement stability as an indicator of the quality of the out-of-home care experience is associated with a range of outcomes at Wave 4 for young people in care, and whether this association is different for different subgroups of children. That is, for children experiencing different combinations of risk and protective factors on entry into care, does placement stability predict later wellbeing outcomes? In this way research could examine how the association between placement instability and later child wellbeing is influenced by child and birth family demographic and personal factors (including maltreatment and trauma histories) that have been identified by others (e.g., Hopkins et al., 2019) as playing a role in longer term outcomes for children in out-of-home care.

## 5. Concluding statement

Children in out-of-home care are at greater risk of negative life outcomes than other children. The complex interplay of child characteristics and risk and protective factors evident pre-entry into care plays a vital role in the longer-term wellbeing outcomes for children in out-of-home care. Findings from this study have illuminated how key child and family factors interact to affect wellbeing outcomes for children and young people in care.

## Disclaimer

DCJ funds and leads the POCLS. The findings and views reported in this publication are those of the authors and may not reflect those of DCJ.

## Data availability

The data that has been used is confidential.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chiabu.2023.106398>.

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