

Research Paper

Substance misuse by birth parents: Outcomes for children and young people placed into out-of-home-care

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ARTICLE INFO

Keywords:

Young people
Out-of-home-care
Child protection
Parent substance misuse
Parent drinking
Developmental outcomes
Longitudinal cohort study

ABSTRACT

Background: There is inconsistent evidence regarding the effect of birth parent substance use on developmental outcomes for children placed into out-of-home-care (OOHC).

Objective: This study aims to examine how parental substance use affects outcomes of Australian children in out-of-home care, adjusting for key demographic, social and system factors.

Participants and setting: Four waves of survey data were collected for children and young people who agreed to participate in the Pathways of Care Longitudinal Study (POCLS) between 2011 and 2018. The study sample included 1,506 children and young people (792 with a history of parental substance misuse) aged 9 months to 17 years who participated in at least one wave of the POCLS and had linked administrative data from the Department of Communities and Justice (DCJ), NSW, Australia.

Methods: Multilevel longitudinal models were used to analyse the relationship of child developmental outcomes (physical health, socio-emotional wellbeing, and verbal and non-verbal cognitive ability) with parental substance misuse in their child protection history. Each model included adjustments for child demographics, family socioeconomic status, child protection system factors and the unbalanced panel.

Results: Children in OOHC with a history of parental substance misuse were more likely to be in the typical range for verbal cognitive development compared to those in OOHC without this history. In addition, younger (9 months to 5 years) children with a record of parental substance misuse exhibited significantly more typical fine and gross motor skill development than those without this history.

Conclusions: Concerns that children in OOHC with a history of parental substance misuse may be more affected with regards to early-stage physical development, and later verbal cognitive development than those without this history in OOHC, may not be justified.

Introduction

Children (0–11 years) and adolescents (12–17 years) with birth parents or carers who misuse alcohol or other drugs (AOD), compared to those with parents who do not, have been reported to be at greater risk of removal from their birth parents or carers in Australia, North America and the United Kingdom (Dawe et al., 2007; English et al., 2015; Laslett et al., 2013; Schilling et al., 2007; Staton-Tindall et al., 2013). The focus of this study of children and young people aged 9 months to 17 years, in

out-of-home care (OOHC) is whether and how substance misuse by their birth-parents or carers, affects children's cognitive, socio-emotional and physical developmental outcomes over time following entry into OOHC.

When one or more parents drink heavily, children and adolescents remaining within that environment are at greater risk of poorer educational, social and health outcomes (Christoffersen & Soothill, 2003; Rossow et al., 2015). Similar risks also exist for children and young people whose parents and carers engage in other substance misuse (Bountress & Chassin, 2015; Solis et al., 2012). The decision to place a

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child or young person in OOHC due to their birth parent/s' substance use is intended as a means of protecting children from the potential associated risks, but may also be affected by a range of ongoing systemic factors and potential biases, including stigma associated with substance use and disadvantage (Olsen, 2015). For instance, there has long been evidence that children may be placed in out-of-home-care more quickly when there is evidence of other drug 'abuse' vs alcohol 'abuse' in the UK (Forrester & Harwin, 2008), with this related to stigmatisation of parental drug use (Olsen, 2015). Stigmatisation of drug use by parents, and particularly mothers in Australia continues, regardless of measures of parenting capacity (Olsen, 2015). The subsequent outcomes for children after being placed in OOHC may or may not continue to be linked in some way to early childhood experiences associated with this exposure.

A multitude of significant and complex factors, such as early childhood experiences and mental health, come into play as these children engage with the child protection system, enter OOHC, and develop as their life trajectories play out (English et al., 2015; Schilling et al., 2007; Staton-Tindall et al., 2013). For instance, some studies have also found no benefit, or worse outcomes for children placed into OOHC as a result of alcohol or drug misuse compared to those in in-home care (Maclean et al., 2016). Historically there has been questioning of that assumption; West and Prinz (1987), in their review of a decade of papers, reported that only a minority of children of 'alcoholic' parents were affected by childhood psychological disorders in their development.

Current knowledge of the impact of parent substance use on children and young people in out-of-home care

Parental substance misuse may lead to child protection system involvement and potentially placement in OOHC (Dawe et al., 2008; Walsh et al., 2018). In Australia and internationally, birth-parent or carer alcohol abuse and other drug abuse have been linked to increasingly serious and recurrent child maltreatment, resulting in court orders that involve placement in OOHC (Laslett et al., 2013, 2012; Osborne & Berger, 2008). Underlying potential maltreatment may result from parental substance misuse, such as neglect or safety issues and contribute to a child's removal from their parent or carer. While progress has been made in understanding the adverse impacts of heavy drinking on families and children in the general population (Velleman et al., 2011) as well as children in OOHC (Laslett et al., 2012), more research, particularly using longitudinal study designs, is needed to better understand the long term impact on the lives of children and young people who experience OOHC due to parental alcohol and other substance misuse. The Pathways of Care Longitudinal Study (POCLS) was developed to study the trajectories of children and young people entering OOHC in 2011–2018 in the state of New South Wales in Australia.

Child protection pathways

Within New South Wales, concerns about drug or alcohol 'abuse' by parents (and others) that affect children are reported to the NSW Child Protection Helpline and intake is informed by state protocols and training of the NSW child protection workforce (Australian Institute of Health and Welfare, 2021; Family and Community Services, 2011). As part of the help line report, case workers will assess several aspects of the report, including the extent and nature of harm, if medical intervention may be required and if there are any established patterns or relevant previously reported issues. Depending on these and other factors a report may be judged to have met the statutory threshold of risk of significant harm and investigation may be commenced on a Risk of Significant Harm (ROSH) report (Family and Community Services, 2011).

If a ROSH report is considered substantiated, indicating there is sufficient evidence to support that a child or young person is at an

unacceptable risk of mistreatment, protective orders may be issued, from which a child may be placed in OOHC. OOHC is considered an intervention of last resort, with a current emphasis being to keep children with their families wherever possible (DCJ Caseworker Dashboard, 2020; Family and Community Services, 2011).

Objectives

Research using existing OOHC, and other system data, is important for evaluating the efficacy and outcomes of the systems children and young people traverse. Research like this, which looks at the developmental vulnerability and needs of children and young people in care, helps providers and partner agencies to more effectively plan and tailor services and supports for this vulnerable group of children in care—including education, health, therapeutic supports. Our research question is:

Does a history of parental substance (alcohol and/or other drug) misuse affect developmental outcomes for children and young people?

This study's objective is to examine whether and how strongly a history of substantiated parental alcohol or other drug use (yes/no) is associated with health, cognitive and socio-emotional outcomes for children (9 months–17 years of age) who experience OOHC. The key hypothesis is that for children and young people in (and traversing) OOHC, substance use history of their birth parent family is associated with poorer developmental (cognitive, physical, social-emotional) outcomes in comparison with children and young people from a birth family where substance misuse was not reported. It should be noted that reports of parental substance abuse may also comprise or be reported alongside other risk of significant harms, such as physical abuse or neglect.

Method

Data

This study provides longitudinal assessments of interview response data across Waves 1–4 of the POCLS (Paxman et al., 2014), and linked administrative and child protection report data from the Department of Communities and Justice (DCJ). The POCLS population cohort included 4126 children aged between 9 months and 17 years who entered OOHC for the first time between May 2010 and October 2011. Of that total, 2828 children received final orders from the Children's Court by 30 April 2013, and were included in the 'final order's cohort. Beginning with the first wave in 2011, interviews were conducted with children and their carers 18 months following their first entry into OOHC, with 1798 children included in the interview cohort, from which the sample for this study was drawn. Four waves of data were analysed with the fourth wave completed in 2018. Each wave occurs approximately 18–24 months following the last. In 2011, the Wave 1 survey response rate was 56 % ($n = 1285$) of the final orders cohort (excluding those children restored to their birth parents prior to the first interview ($n = 515$), who were excluded from the first wave, but included from Wave 2 onwards) (Paxman et al., 2014). Sample retention has remained high across Waves 2–4, with 1200 participants in Wave 2, 1033 in Wave 3 and 962 in Wave 4 (NSW Department of Communities and Justice, 2019). A total of 734 children and young people participated in interviews in all of the first four waves and 1506 children and young people participated in at least one wave. Children and carers who did not agree to participate in any wave are considered non-responders. The final sample includes 1506 children and young people (see Fig. 1).

Measures

Each child and their carer participating in the POCLS survey take

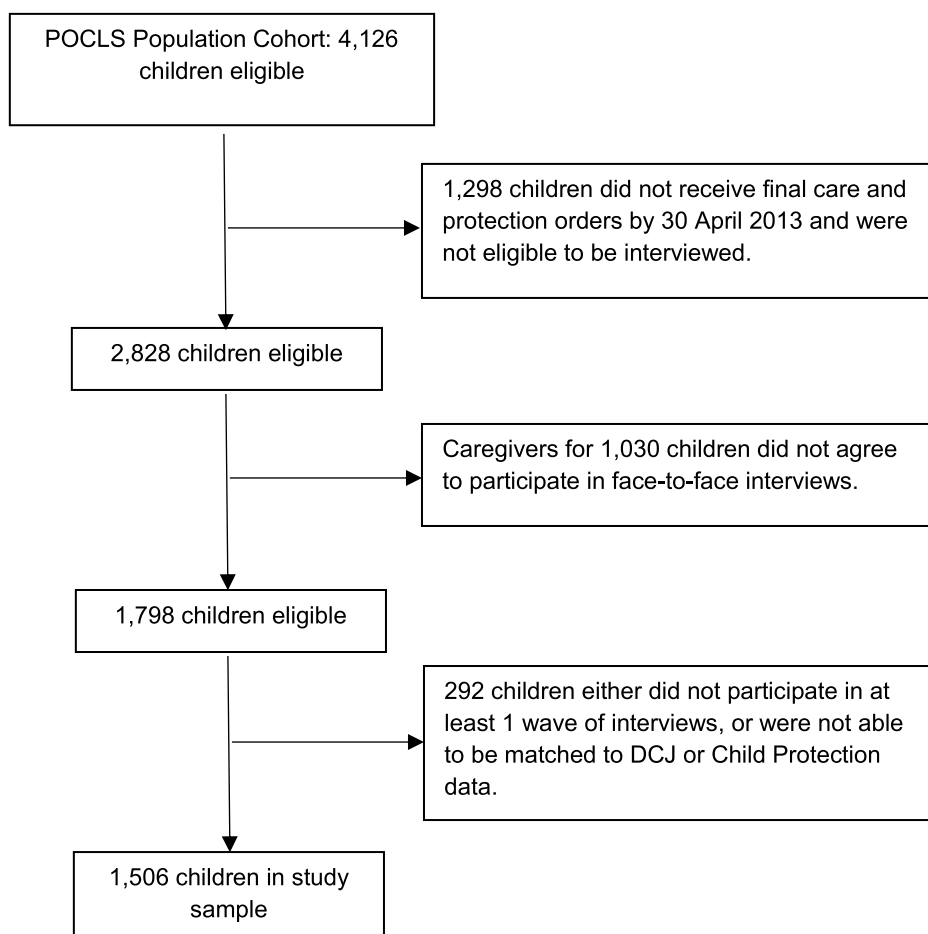


Fig. 1. Outline of study sample selection process.

part in a range of validated screening tools and questionnaires to determine how they are tracking with regards to a range of developmental outcomes. (Wells et al., 2020).

Socio-emotional wellbeing

Results from two measures, the Brief Infant Toddler Social Emotional Assessment (BITSEA) (Briggs-Gowan & Carter, 2006) and the Child Behaviour Checklist (CBCL) (Achenbach & Rescorla, 2000), were combined to provide a longitudinal assessment of socio-emotional development over time for all children in the sample. These scales were chosen as they both provide comprehensive assessments of social-emotional competence and together cover the entire range of ages present within POCLS (NSW Department of Communities and Justice, 2020a), with the BITSEA covering children aged 12–35 months, and the CBCL all children aged 3–17 years. From wave 2 onwards, as all children were aged 3 and up, the CBCL was used for all children.

Cognitive development

Non-verbal cognitive development, or reasoning ability, was assessed similarly by making use of the problem-solving and matrix reasoning scales of the Ages and Stages Questionnaire (ASQ) (Squires & Bricker, 2009) and the Weschler Intelligence Scale, Fourth Edition (WISC-IV) (Weschler, 2003) respectively.

For children aged from 9 to 66 months, the ASQ provides assessments across five different domains: communication, gross motor, fine motor, problem solving, and personal-social. In particular, the present study makes use of the problem solving and gross and fine motor scales to assess non-verbal functioning and physical development, while the WISC-IV matrix reasoning test was used to measure logical reasoning of

children aged 6 and up.

Three scales were used to assess verbal cognitive development. This includes the Communication and Symbolic Behaviour Scale Infant-Toddler Checklist (CSBS ITC) for children aged 9–23 months (Wetherby & Prizant, 2001), the MacArthur-Bates Communicative Development Inventory-III (MCDI-III) for children aged 24–35 months (Fenson et al., 2007) and the Peabody Picture Vocabulary Test (PPVT) for those aged 3–17 years (Dunn & Dunn, 2007).

Physical health

Physical development was evaluated using the ASQ gross and fine motor skill categorical cut-off variables. As a result, in this analysis, physical development outcome analyses were limited to children in our sample within the ASQs age range (9–66 months) at the time of each wave (those who completed the ASQ in wave 1 would no longer be within the age range by wave 4).

Outcome variables. Results for each of the measures described are provided both in the form of scale scores and categorical cut-off variables. In particular, the cut-off variables for each measure provide a clear indication of whether a child's development is within the normal range (typical) or if further professional or clinical intervention is required.

The present analysis made use of these cut-off variables to create binary outcomes (coded Typical Development = 0, Atypical Development = 1 which includes 'borderline' or 'clinical' scores), tracking individual child development for each of the domains of interest: physical health, socio-emotional wellbeing, and verbal and non-verbal cognitive development (Wells et al., 2020).

Main independent (predictor) variable

The main independent variable, “parental history of substance misuse” is a dichotomous variable constructed using two variables. 1) the presence of a drug or alcohol related Risk of Significant Harm (ROSH) report acquired from DCJ child protection data ($N = 697$, ~90 %) and/or 2) parent/s reporting during POCLS interviews that they required treatment for alcohol or drug misuse ($N = 79$, ~10 %). Parent history of substance misuse was coded as 1, no history as 0). The combined variable had good internal consistency ($\alpha = 0.87$).

Interviews were conducted with parents who had their children restored, and included questions regarding whether substance abuse was the reason their children were placed into care, or whether they required alcohol or drug treatment before the child was removed. An affirmative to any of these questions at any wave signified that there was a family history of substance misuse for the purposes of this variable.

Secondary independent and control variables

Secondary independent and control variables are child age at entry into OOHC (continuous variable), sex (Male = 0, Female = 1), Aboriginal status (No = 0, Yes = 1), disability or mental illness status (No = 0, Yes = 1), district or location in New South Wales the child is from, the total number of ROSH reports prior to entering out-of-home care (continuous variable), as well as, the type of out-of-home care placement at the time of interview (foster care = 1, relative/kinship care = 2, residential care = 3) and the predominant type of reported maltreatment experienced by the child or young person prior to entering care. Specifically, for each child, this variable indicates the type of maltreatment associated with the majority of all reported incidents prior to entering care. In cases where no single type represents a majority of reported maltreatment, this variable is reported as mixed/multi-type maltreatment (coded as no maltreatment = 1, physical = 2, sexual = 3, neglect = 4, emotional/psychological = 5, mixed/multi-type maltreatment = 6).

To account for biases related to participant non-response a range of survey weights are prepared for use with POCLS data (NSW Department of Communities and Justice, 2020b). However, due to difficulties accurately weighting an unbalanced panel as used in this study and as weights were not available for the 4th wave at the time of analysis, we have elected to include additional variables used in the construction of these weights to account for differences between the study sample and the population and approximate the effects of applying the weights for all waves. As a result, any changes in placement (coded as a continuous representation of the number of changes, with “0” indicating no changes between waves) or ROSH reports between waves (similarly coded as continuous, with “0” indicating no reports between waves) were also included (Steel & Navin Cristina, 2019).

Sample

The present analysis required information regarding birth family substance use not present from interviews conducted with children, young people, or carers. As a result, in addition to the POCLS interview data, the present study has also made use of the administrative and child protection datasets obtained for POCLS from DCJ. Thus, children eligible for this analysis must have not only responded to at least one wave of POCLS interview, but also must be able to be matched to the DCJ child protection reports data. Finally, we also elected to include all available data and are treating the sample as an unbalanced panel.

A total of 1506 children (47.6 % male) met the above criteria, of which 792 were identified as having a history of parental substance misuse. For the physical outcome measures, only those children in the sample aged between 9 and 66 months were included ($n = 865$).

Statistical analyses

To test the key hypothesis, that children in out-of-home care with a

history of parent substance misuse will return poorer developmental scores over time compared to those without a history, we compared key developmental outcomes over time of children and young people in out-of-home care from two sub-groups, i.e., those with and without history of birth parent substance use. Our binary cut-off variables, mentioned previously, have been created to provide a clinically relevant dichotomous indicator of the need for interventions and professional support and provide a clearer indication of any significant differences in developmental outcomes between parent history groups.

To compare those with a recorded history of parental substance misuse and those without, descriptive summaries of individual and birth family demographics and experiences prior to and in out-of-home care are provided. Rank-sum (to account for non-normality among demographic and outcome variables) and χ^2 tests of proportions were used to test for significance among these comparisons. A Holm-Bonferroni correction, whereby the lowest p -value is compared to the chosen alpha (0.05 in this case) divided by the number of tests, the next lowest p -value is compared to 0.05 divided by the number of comparisons—1 and so on until all p -values are significant or non-significance is reached (Holm, 1979), was then used to account for the increased likelihood of obtaining a Type-1 error when conducting multiple comparisons. Correlations between covariates were tested for, with coefficients less than 0.7 indicating that multi-collinearity was not of concern.

Multi-level, mixed effect models, with observations nested within individuals, were run to test the influence of individual parent history of alcohol or drug misuse, and how this history may affect child developmental outcomes over time. Maximum likelihood estimation was used for each model. Models were initially run as bivariate models, with individual outcomes regressed on history of parental substance misuse. Logistic regression was used to test each covariate’s association, individually and simultaneously, with the reported history of parental substance misuse variable and gauge suitability for inclusion within the multivariate models. Based on the results of this, those models evaluating outcomes covering the entire range of children in the sample (socio-emotional, verbal and non-verbal development) included adjustments for age at entry to OOHC, sex, Aboriginality, mental illness or disability, the number of ROSH reports prior to entry, the district the child or young person is from, the type of placement at time of interview, the predominant maltreatment type experienced prior to entry, as well as the number of ROSH reports and whether there were any placement changes between waves. Additional variables, including whether the child is from a culturally, or linguistically diverse (CALD) background (i.e., whether they were born in non-English speaking countries, or do not speak English at home Pham et al., 2021), the time from ROSH report to entering care and birth parent annual before tax income were also considered but excluded based on the regression results. In addition, models including age at first ROSH report prior to OOHC entry, instead of age at entry into OOHC, were also run but found to provide a worse overall fit of the data and are not included here. As the ASQ physical outcome measures were limited to children aged 9–66 months, additional longitudinal regression analyses were carried out as per the above methodology with only those children who were aged between 9 and 66 months. As a result, the models assessing physical outcome measures were adjusted for all variables as above except for district.

Missing data

Although participant non-response was a real concern considering the nature of data collection among young children being placed into OOHC, the majority of the sample had relatively complete data, with all covariates having no more than 5 % missing data, apart from the reported district (11.7 %). Our outcome variables also generally had no more than 5 % missing data, save for the verbal (9.1 %) and non-verbal (12.8 %) cognitive development scales. Maximum likelihood estimation was used within our models to account for the effect of missing data,

while, as mentioned previously, weights were approximated to also account for potential biases within the sample due to non-response.

Results

Table 1 provides a summary of the characteristics of the total sample, with further statistical comparison of key characteristics also provided for those in the sample, according to parent history of substance misuse.

Based on the sample characteristics and tests comparing means and proportions of demographic and experience in out-of-home care variables, there were few sizeable differences between those children with a history of parental substance misuse and those without, with no difference in the mean number of placements or, following implementation of a Holm-Bonferroni correction, the proportion of children with a disability or mental illness. However, of interest was that children and young people with a reported history of parental substance misuse had significantly more ROSH reports prior to entering OOH. Comparisons

of the predominant maltreatment type experienced prior to their first placement indicated that those children with a history of parental substance misuse were significantly more likely to have experienced neglect and less likely to have experienced physical harm, compared to those without a reported history. Unfortunately, as data for those children who experienced multiple types of harms was not further disaggregated, we were unable to further identify the exact types of harms or issues they experienced.

In addition, there was not a significant difference between the type of placement children were placed into at the time of interview among those children with and without a history of parental substance misuse following a Holm-Bonferroni correction. However, further examination found that a significantly greater number of children with a family history were placed into, and remained in, relative/kinship care across their time in care ($Z = 3.16, p < 0.01$), while fewer were placed into, and remained in, foster care ($Z = -2.97, p < 0.01$). These differences remained significant even following Holm-Bonferroni correction. A

Table 1
Sample demographics for children with and without a history of parent substance abuse.

	Total sample	History	No history	Test <i>p</i> -value
Total n (%)	1506	792 (52.6 %)	714 (47.4 %)	
Sex				
Male	747 (49.6 %)	377 (47.6 %)	370 (51.8 %)	$Z = -1.63, p = 0.10$
Female	759 (50.4 %)	415 (52.4 %)	344 (48.2 %)	
Age at First Entry into OOH		Mean (SD)	Mean (SD)	$Z = -3.27, p < 0.01^*$
≤5 years	1082 (71.8 %)	563 (71.1 %)	519 (72.7 %)	
6–10 years	289 (19.2 %)	168 (21.2 %)	121 (16.9 %)	
11+ years	135 (9.0 %)	61 (7.7 %)	74 (10.4 %)	
Mean number of placements	3.5 (2.3)	3.5 (2.3)	3.5 (2.3)	$Z = 0.01, p = 0.99$
Mental illness or disability				
Yes	274 (18.2 %)	126 (15.9 %)	148 (20.7 %)	$Z = -2.42, p = 0.02$
No	1232 (81.8 %)	666 (84.1 %)	566 (79.3 %)	
Aboriginality of child				
Aboriginal	542 (36.0 %)	312 (39.4 %)	230 (32.2 %)	$Z = 2.90, p < 0.01^*$
Non-Aboriginal	964 (64.0 %)	480 (60.6 %)	484 (67.8 %)	
District				
Hunter New England and Central Coast	370 (27.1 %)	217 (30.7 %)	153 (23.2 %)	–
Murrumbidgee Far West and Western NSW	234 (17.1 %)	138 (19.5 %)	96 (14.6 %)	–
Western Sydney and Nepean Blue Mountain	218 (16.0 %)	81 (11.5 %)	137 (20.8 %)	–
Mid North Coast and Northern NSW	149 (10.9 %)	70 (9.9 %)	79 (12.0 %)	–
South Western Sydney	148 (10.8 %)	79 (11.2 %)	69 (10.5 %)	–
Illawarra Shoalhaven and Southern NSW	126 (9.2 %)	64 (9.1 %)	62 (9.4 %)	–
South Eastern, Northern and Sydney	116 (8.5 %)	57 (8.1 %)	59 (9.0 %)	–
Mean ROSH reports prior to entry	8.97 (8.49)	11.33 (9.50)	6.32 (6.18)	$Z = -12.36, p < 0.01^*$
Predominant maltreatment type prior to first placement				
Physical Harm	292 (19.4 %)	107 (13.5 %)	185 (25.9 %)	$Z = -6.08, p < 0.01^*$
Neglect	394 (26.2 %)	240 (30.3 %)	154 (21.6 %)	$Z = 3.85, p < 0.01^*$
Mixed/Multi-Type Maltreatment	745 (49.5 %)	416 (52.5 %)	329 (46.1 %)	$Z = 2.50, p = 0.01$
Placement Type at First Interview				
Not Applicable (Child exited from care. E.g., restored/adopted, etc.)	117 (7.8 %)	73 (9.2 %)	44 (6.2 %)	
Foster Care	718 (47.7 %)	353 (44.6 %)	365 (51.1 %)	$Z = -2.54, p = 0.01$
Relative/Kinship Care	637 (42.3 %)	354 (44.7 %)	283 (39.6 %)	$Z = 1.98, p = 0.05$
Children restored at any wave/placement	242 (5.4)	168 (7.0 %)	74 (3.6 %)	$Z = 5.72, p < 0.01^*$
Outcome Variables (at time of first interview)	Total Sample Atypical Development	History Atypical Development	No History Atypical Development	
Socioemotional Development	402 (26.7 %)	229 (28.9 %)	173 (24.2 %)	
Non-Verbal Cognitive Development	406 (27.0 %)	197 (24.9 %)	209 (29.3 %)	
Verbal Cognitive Development	362 (24.0 %)	173 (21.8 %)	189 (26.5 %)	
Gross Motor Skill Development	217 (14.4 %)	89 (11.2 %)	128 (17.9 %)	
Fine Motor Skill Development	280 (18.6 %)	124 (15.7 %)	156 (21.9 %)	

Statistically significant results at $p < 0.05$ level are bolded.

* Indicates significant results following Holm-Bonferroni correction for twelve comparisons.

greater proportion of children with a family history of parental substance misuse were also more likely to be restored to their birth parents across the period of the interviews than those without. Finally, a greater proportion of those children with Aboriginal cultural heritage were observed among those with a history of parental substance misuse. When considered alongside the existence of legislation such as Section 13 of the [Children and Young Persons \(Care and Protection\) Act \(1998\)](#), which has been implemented to ensure that Aboriginal children are placed into relative/kinship care as a priority, if safe to do so, we may expect this to account for the greater proportion of those children with a family history placed in relative or kinship care. However, further tests indicated that the increased proportion of children with a family history of parental substance misuse being placed into relative/kinship care was not associated with having an Aboriginal cultural background ($Z = 1.20$, $p = 0.23$).

Results of the univariate and multivariate multilevel regression models are presented in [Table 2](#), with full model results available in Appendix 1 in the Supplementary Materials.

There was no significant difference in socio-emotional development among those children with a history of parental substance misuse compared to those without. However, having a history of parental substance misuse was associated with being significantly more likely to be in the range of typical verbal cognitive development across all waves. Based on the odds ratios obtained for our verbal cognitive outcome measure, children with a history of parental substance misuse were 32 % less likely to experience atypical verbal cognitive development based on this scale (unadjusted), and 30 % less likely after adjusting for age at entry, sex, Aboriginality, disability or mental illness, district, number of ROSH reports prior to entry, placement type and the predominant maltreatment type experienced by the child.

Statistically significant differences (at $p < 0.05$ levels or lower) were also found between those with a history of parental substance misuse and those without for those in the younger age group (aged 9 months to 5 years) for physical development outcomes (gross and fine motor skills) over time. These differences remained, even after adjusting for age at entry, sex, Aboriginality, disability or mental illness, number of ROSH reports prior to entry, placement type and predominant maltreatment type experienced by the child. In particular, those with a history of parental substance misuse were 31 % less likely to experience atypical

fine motor skill development and 52 % less likely to experience atypical gross motor skill development.

Discussion

The present analysis aimed to identify whether and how parental substance use affected developmental outcomes for children in out-of-home care. Our findings indicate that a history of parental substance misuse, for which children were significantly more likely to predominantly experience neglect, was associated with similar or significantly better developmental outcomes compared to those without a history of parental substance use. Children in the comparison group who had no history of parental substance use were more likely to have experienced physical harm. Children with a history of parental substance misuse were significantly more likely to experience typical verbal cognitive development compared to other children in OOH within our sample. Additionally, younger children (9 months to 5 years) with a history of parental substance misuse were significantly more likely to exhibit typical fine and gross motor skill development. We found no difference in socio-emotional or non-verbal cognitive development.

These findings indicate that our initial hypothesis was not substantiated. Children with a history of parent substance misuse experienced, at worst, similar levels of development compared to those without a history, and for some outcomes, significantly greater, more typical, levels of development. Across the different outcomes observed in the present study, those children with a history of parental substance misuse did not demonstrate any level of development that was considered atypical or that signalled that professional support may be required for our outcomes of interest, as indicated by comparing the proportions of children that met the cut-off levels for the cognitive, emotional and physical measures of development in the general population and in POCLS ([NSW Department of Communities and Justice, 2020a](#); [NSW Department of Communities and Justice, 2020b](#)).

This is not to say that alcohol or drug use exposure do not contribute to additional negative health outcomes. Studies have shown a wide range of adverse outcomes are attributable to parental alcohol or drug misuse. These children, compared to those without parental alcohol or drug misuse, often engage with substances earlier, are more likely to become dependent and to engage in risk taking behaviours ([Handley & Chassin, 2013](#); [Park & Schepp, 2015](#); [Sørensen et al., 2011](#); [Windle & Windle, 2018](#)), as well as experience longer-term negative outcomes, such as being more likely to be diagnosed with mental health problems ([Balsa et al., 2009](#); [Park & Schepp, 2015](#)). In addition, [Yule et al. \(2018\)](#) found evidence of associations between maternal substance use disorders and substance use disorders of their children (offspring) in the general population, yet no association was observed for paternal substance use. In addition, studies such as that by [Lander et al. \(2013\)](#) suggest that children with a history of parental substance abuse may experience adverse developmental and educational outcomes. However, few studies have been able to contextualise these outcomes in comparison to other children placed into OOH.

Thus, it becomes important to consider the mechanisms that are affecting the range of developmental outcomes in which significant differences are occurring. A range of possible factors may explain our findings. Children with a history of parental substance misuse may be less affected with regards to early stage fine and gross motor skill development, and later verbal cognitive development than those without such a history. Based on our findings, those with a reported history of parental substance misuse were more likely to have predominantly experienced neglect, and less likely to have experienced physical harm. Despite not being able to determine the exact harms or maltreatments experienced by those classified as having experienced mixed/multi-type maltreatment, we would expect those children who suffered mixed or multiple maltreatments to be more at risk of atypical development. That over half of those children with a history of parental substance misuse in our sample experienced mixed or multiple types of

Table 2

Univariate and multivariate regression results assessing developmental outcomes for children with and without a history of parent alcohol and drug misuse.

Outcome	Univariate, Unadjusted		Multivariate, Adjusted		AIC / BIC
	Coefficient (SE) / Odds Ratio (SE)	p-value	Coefficient (SE) / Odds Ratio (SE)	p-value	
Socio-Emotional (N = 1363) ^a	0.26 (0.23) / 1.29 (0.29)	0.26	0.21 (0.22) / 1.24 (0.28)	0.34	3673.88 / 3861.50
Non-verbal Cognitive (N = 1306)	-0.03 (0.15) / 0.97 (0.14)	0.83	-0.08 (0.16) / 0.92 (0.15)	0.62	3536.10 / 3720.58
Verbal Cognitive (N = 1318)	-0.39 (0.17) / 0.68 (0.12)	0.02	-0.36 (0.18) / 0.70 (0.12)	0.04	3207.66 / 3393.26
Physical					
Fine Motor (N = 845)	-0.46 (0.18) / 0.63 (0.11)	0.02	-0.37 (0.17) / 0.69 (0.12)	0.03	1973.39 / 2093.94
Gross Motor (N = 846)	-0.75 (0.26) / 0.47 (0.12)	<0.01	-0.74 (0.25) / 0.48 (0.12)	<0.01	1513.34 / 1633.89

^a Ns refer to number of children or young people included in each multivariate, adjusted model. AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion. Statistically significant results at $p < 0.05$ level are bolded.

maltreatment and still generally exhibited typical levels of development for all outcomes may further suggest that these children are less affected than those without this history. Additionally, it may also be the case that those children with a history of parental substance misuse, possibly due to the differences in experienced harms, are simply more readily or capably supported and cared for in out-of-home care. Alternatively, the use of different types of placements, such as relative/kinship care, may provide better means of connection and care for children who have experienced certain harms. Studies, including the present one, have shown that children placed into OOH as a result of their history of parental substance misuse are more likely to be placed into relative or kinship care than others (Vanderploeg et al., 2007). Relative/kinship care in particular, has been shown to provide a range of benefits such as reducing the adverse effects associated with being separated from family, and providing for cultural requirements and identities (Paxman, 2006; Winokur et al., 2015). In addition, they often remain in care for longer periods. This may be reflected in our results, as other studies have also found that children who remain in stable care for longer periods often experience better outcomes (Courtney & Dworsky, 2006). However, as Delfabbro (2017) notes, there may be a selection effect present, whereby children placed in relative/kinship care have fewer behavioural, emotional and developmental issues, compared to those placed into foster care. In addition, there is also evidence to suggest that many relative/kinship carers and by extension the children placed into their care are vulnerable or at risk due to older age, financial hardship, poor health and low education (Boetto, 2010; Paxman, 2006). Additional analysis through use of marginal effects found that the predicted odds of experiencing atypical development was generally lower for those children in relative/kinship care at first interview for all of our developmental outcomes (Appendix 2), which may also support the selection effect for relative/kinship placements.

That children with a history of parental substance misuse were more likely to be restored to their birth parents may also speak to the potential for these children to have experienced fewer harms than those without such a history. However, the relatively small number of children who are restored may indicate that there are still substantial difficulties present in addressing the risk of further harm for children of parents with substance misuse issues. Wider Australian data indicated that around 19% of children exited care to a reunification in 2017–18 (Australian Institute of Health and Welfare, 2021), suggesting the rates of restoration observed for those children in our study to be relatively lower. Alternatively, the relatively typical development observed for our outcome measures may suggest that the harms and adverse impacts related to parental substance misuse may not be fully represented by the measures evaluated in this study, which may be reflected in the small differences in scale scores between those with and without a family history. Further evaluation of the impact of parental substance use, as well as further developing our understanding of what constitutes sufficient substance misuse to justify removal may be beneficial for families going forward. That children of a parent with a history of substance misuse were the subject of almost twice as many ROSH reports in these analyses, even before entering care, supports previous work by Olsen (2015) that parents who use substances may be more likely to be the subjects of surveillance and concern by child protection workers than other parents. And, as shown in cross-sectional analyses by Laslett et al. (2013), after adjusting for mental ill-health, family violence and socio-economic disadvantage, substance use remained a significant factor predicting poorer outcomes for children in child protection in Victoria, Australia. All of these factors, including substance use, likely increase the risk of surveillance.

As a result, further study investigating longer-term health and behavioural outcomes associated with the uptake of alcohol and illicit substances among children and young people and further consideration of the role of out-of-home care as a means of reducing exposure to and preventing further negative outcomes may provide a clearer indication of the potential benefits for future policy and child protection practices.

In addition, further understanding of the risks and mechanisms underpinning the developmental differences among children placed into OOH and the harms experienced also appears warranted. Such research would enable development and targeting of therapeutic interventions to appropriately address and combat developmental and longer-term adverse outcomes for these children. Further evaluation of outcomes for children placed in out-of-home care and greater consultation with practitioners and social workers before children are placed in OOH may provide more nuanced methods of addressing potential substance use issues and better outcomes for children.

Limitations

The following limitations should be kept in mind when interpreting these findings. Our sample only includes those children who have been placed in OOH. As a result, our ability to contrast the development of children within our sample is limited to our comparisons of those with a history of parental substance misuse and those without. As a result, we are unable to provide broader comparisons between the development of children in our sample, both with and without a history of parental substance misuse, and those in the broader community. However, each of the developmental scales we have made use of (CBCL, PPVT and ASQ), within the present study, do provide a range of scale scores that reflect normative, on schedule, levels of development within the broader population. Thus, we have been able to provide a basic evaluation of the level of development of children within our sample compared to more normative, on-track developmental expectations.

Alcohol and drug use have been combined into a single measure and exposure within the POCLS survey. This has meant that although there may be differences between outcomes, development and harms experienced by children who have a history of parental alcohol use compared to those with drug use, we are unable to disaggregate any potential differences. However, as the majority of children assessed in the present study had a parental history of drug or alcohol misuse, these might appear to be relatively common exposures for children in out of home care, which may be difficult to assess separately anyway. Thus, we have elected to consider parental substance misuse only.

A history of parental substance misuse may manifest in a range of additional harms and forms of abuse (Solis et al., 2012; Taplin et al., 2014). As a result, those children in our sample with a history of parental substance misuse may individually have experienced a very wide range of harms, which may make it difficult to attribute the level of harms and their effect on developmental outcomes to familial alcohol or drug misuse specifically. In addition, identification of parental alcohol or substance misuse was based on substantiated reports of these issues. As a result, some cases of parental alcohol or substance misuse may not be included as such within the present study if they were not able to be substantiated during the course of an investigation.

The children included in the present study have entered out-of-home care at different ages. Further generalisation of our findings to children with a history of parental substance misuse should be made cautiously, and within the range of ages specified, as a range of developmental differences may occur as a result of age and time spent in out-of-home care and the types and numbers of placements. However, evidence based on analysis using data from Wave 1 of POCLS suggests that variables associated with child wellbeing, physical health and language/cognitive development are not dependent or affected by the length of time a child had spent in care (Australian Institute of Family Studies, 2017).

Additionally, the same report also identified that children with health conditions or high levels of behaviour problems had a greater rate of non-participation for the PPVT (Australian Institute of Family Studies, 2017). As a result, our findings regarding levels of development on the scales should be interpreted with caution. However, we would not expect this non-participation to differ with regards to their history of parental alcohol or drug misuse, and as a result, would expect the

differences observed with regards to this history to hold.

Many of the developmental outcome scales in the present study require evaluation by carers to complete the assessment. As a result, there is the potential for biases resulting from a carer's perspective or unfamiliarity with the child to result in potentially inaccurate assessments. For this reason, some studies, in particular those assessing younger children, such as the BITSEA, recommend carers wait until the child (NSW Department of Communities and Justice, 2020a). Despite this, care should be taken when further interpreting the findings of the present study, particularly given carers may be likely to score their children's achievements more positively to reflect their influence. Although there is no reason to expect that carers would score the development of children differently based on a child's reported history of birth parent substance use.

The nature of data collection among young children being placed into OOHC means that it can be difficult to achieve a high level of response, particularly with regard to the completion of the developmental scales used in the present study. As a result, there is the potential for non-response to have hampered the overall generalisability of our findings, particularly for our verbal and non-verbal cognitive development outcomes, which should be considered cautiously. However, our findings do reflect similar analyses of the POCLS data by other researchers regarding developmental progress and outcomes for children placed into OOHC (Wells et al., 2020). In addition, our use of multilevel, mixed effects models, which can account for some level of missing values across each occasion, may help to provide surety in our findings.

Conclusion

Among children in OOHC, a history of parental substance misuse was not a predictor of poorer developmental outcomes. Comparatively, children without a history of parental substance misuse were found to score significantly lower on our outcome measures assessing verbal cognitive and fine and gross motor skill development, to the point that they were significantly more likely to require professional support or intervention. This may reflect the types of placements and harms experienced by children and young people (who were and were not exposed to parental substance misuse) in our sample. Children and young people in our sample with a history of parental substance misuse were significantly, albeit moderately, more likely to have experienced neglect and less likely to have experienced physical harm, which may explain some of the differences in outcomes observed. Although the exact mechanisms underlying the differences in developmental scores observed for children with a history of parental substance misuse are currently uncertain, further work may be better placed to observe and explain the narrative behind our findings. Similarly, although our data suggests that children with a history of parental substance misuse may have been resilient to the range of experiences and difficulties in OOHC (relative to children without this experience, who appear to have been affected more severely in other ways), these findings should be treated with caution as they indicate that what was previously seen as a key risk factor has been protective of a small number of developmental outcomes. Further work should identify and assess the magnitude and impact that parental alcohol and drug misuse may have on a range of outcomes for children and young people.

Author declarations and role of funding source

Laslett is funded by Australian Research Council Grants (DE190100329 and LP190100698) and the National Health and Medical Research Council (GNT2016706).

This work was supported by the Pathways of Care Longitudinal Study (POCLS): the outcomes of children and young people in out-of-home care, supported by Family and Community Services Insights Analysis and Research (FACSIAR), Department of Communities and Justice, NSW Government Ethics Approval HC16542 continued from HC10335,

Research Ethics and Compliance Support (RECS), NSW, Sydney.

CRedit authorship contribution statement

Geoffrey Leggat: Writing – review & editing, Writing – original draft, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Emmanuel Kuntsche:** Writing – review & editing, Writing – original draft, Supervision. **Sandra Kuntsche:** Writing – review & editing, Writing – original draft, Supervision, Conceptualization. **Prue Atkins:** Writing – review & editing, Writing – original draft, Funding acquisition, Conceptualization. **Anne-Marie Laslett:** Writing – review & editing, Writing – original draft, Supervision, Project administration, Methodology, Conceptualization.

Declaration of competing interest

The authors declare they have no conflicts of interest.

Acknowledgements

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

In addition, we would also like to thank and acknowledge the guidance provided by the Pathways of Care Longitudinal Study (PoCLS) team. In particular, we would like to thank Marina Paxman, Albert Zhou, Courtney Breen and Jen Lau for their advice and assistance throughout each stage of the present project.

All the POCLS data in this report is accurate as of 31/10/2020. The analyses presented in this report uses data from: the DCJ POCLS survey data waves 1–4 collected in face-to-face interviews with children, young people and caregivers, record linkage data provided to the POCLS by NSW DCJ DCJ funds and leads the Pathways of Care Longitudinal Study. The findings and views 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.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.drugpo.2024.104544](https://doi.org/10.1016/j.drugpo.2024.104544).

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