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Parents who inject drugs: Demographics, care arrangements and correlates for child placement in out-of-home care

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Abstract

Introduction: Children in families affected by substance use disorders are at high risk of being placed in out-of-home care (OOHC). We aimed to describe the characteristics of parents who inject drugs and identify correlates associated with child placement in OOHC.

Methods: We used baseline data from a community-based cohort of parents who inject drugs (SuperMIX) from Melbourne, Australia. Participants were recruited via convenience, respondent-driven and snowball sampling from April 2008 to November 2020, with follow-up until March 2021. To explore correlates associated with child placement to OOHC, we used multivariable logistic regression and assessed for potential interactions between gender and a range of relevant covariates.

Results: Of the 1067 participants, 611 (57%) reported being parents. Fifty-six percent of parents reported child protection involvement. Almost half (49%) had children in OOHC. Nearly half of the parents lived in unstable accommodation (44%) and many of them experienced moderate–severe levels of anxiety (48%) and depression (53%). Female or non-binary gender, identifying as Aboriginal or Torres Strait Islander, experiencing assault and having more children were associated with child removal to OOHC. Of the 563 participants who reported their own childhood care status, 135 (24%) reported they had been removed to OOHC.

Discussion and Conclusions: We identified high rates of child placement in OOHC among parents who inject drugs. There is a need for targeted health and social services, that are gender and culturally responsive, in addition to systems-level interventions addressing social inequities, such as housing, to support parents to care for their children.

KEYWORDS
child protection, injecting drug use, out-of-home care, parenting

Key points

- We identified high rates of child protection involvement and child removal to out-of-home-care (OOHC) among a cohort of parents of inject drugs.

- Parents who themselves had been removed to OOHC as a child were more likely to have child protection involvement and OOHC arrangements with their own children.
- Parents who injected drugs had high psychosocial needs, including high rates of moderate–severe anxiety and depression and unstable housing.
- Being female or non-binary, identifying as Aboriginal or Torres Strait Islander, experiencing assault and having a greater number of children were associated with child removal to OOHC.
- Further research and intervention are urgently needed to support parents to care for their children, given the intergenerational impacts of child removal to OOHC.

1 | INTRODUCTION

Globally, an estimated 15·6 million people aged 15–64 years inject drugs in 2016, many of whom are parents [1]. With sustained use of alcohol and other drugs, substance use disorders, characterised by loss of control over the use and subsequent impact on a person's life, can develop. In 2016, the global prevalence of opioid and amphetamine use disorders was estimated at 353 and 65 per 100,000 people, respectively [2].

Children in families affected by substance use disorders are at high risk of being placed in out-of-home care (OOHC) [3]. It is estimated that 60% of Australian children in OOHC were removed from households affected by substance use disorders [4]. For example, among a cohort of 171 Australian mothers in treatment for opioid use disorder, 64% had been reported to child protection services and 33% had at least one child in OOHC [5]. While, differing definitions of OOHC by jurisdiction and over time care limits comparability, data indicate rates of OOHC have been rising in Australia over the last decade. In the past 5 years, overall rates of OOHC have stabilised, but continue to increase for Aboriginal and Torres Strait Islander families who remain over-represented alongside families affected by substance use disorders [6, 7].

Preventing entry to OOHC or mitigating its impacts is critical given the long-term implications for both parents and children. Systematic reviews of non-experimental studies have consistently found poorer health and social outcomes for children placed in OOHC compared to their peers [8, 9]. Evidence indicates that patterns of OOHC can continue across generations, mediated through mental health problems, particularly among families experiencing socioeconomic disadvantage [10]. However, there is evidence that protective factors, including supportive relationships and educational attainment can disrupt the intergenerational transmission of placement in OOHC [11, 12]. Evidence also indicates that loss of child custody also negatively affects maternal health—with increased rates of substance use, overdose, mental illness, trauma and mortality [13, 14].

While children of people who use drugs are often considered to be at risk of poor child outcomes, prior research cautions against conflating parental drug use with child neglect [15–17]. After all, many children with family histories of drug use reach adulthood without demonstrating maladaptive behaviours [18]. Furthermore, any associations between parental drug use and child outcomes need to account for the social contexts and processes which mediate the ability of parents who inject drugs to provide appropriate care to their children. Injection drug use often co-occurs with many other indicators of marginalisation, such as poverty, unstable housing, involvement with the criminal justice system, mental health issues and family conflict, which may impede child development [19, 20]. Additionally, stigmatising attitudes towards people who inject drugs, including parents and especially mothers, create additional barriers to accessing care and social services and increase the likelihood of referral to child protection services and the removal of parental rights [17, 21].

Prior research indicates gendered differences in patterns of child removal among parents who use drugs, with mothers more likely to have children placed in OOHC [22, 23]. This may be due to the higher likelihood of mothers being primary caregivers; however, women also report experiencing amplified stigma because drug use conflicts with normative social expectations for women as caregivers [21, 24]. Gender-specific policies, such as the mandatory reporting of prenatal opioid agonist treatment to child welfare services, reinforce stigma and increase surveillance among women and mothers [25].

Parenthood represents a key time point in which to intervene to improve health outcomes for both parents and children from families affected by the harms associated with substance use. Mothers who use heroin employed a range of strategies to shield their children from the harms of their substance use, including cessation of drug use, entering treatment and ensuring a stable

home environment [16]. Indeed, pregnancy and parenthood have been identified as significant motivators for seeking drug treatment [5]. Conversely, being a parent with custody of a child may be a barrier to accessing treatment given legitimate fears of child removal [22].

Evidence remains scarce on the needs of parents who use illicit substances, including parents who inject drugs. A systematic review identified only two relevant studies describing correlates for child removal among parents who inject drugs [26] and most research to date has been conducted among parents accessing treatment for substance use disorders [27].

Evidence, including the characteristics and living circumstances of families, is needed to develop strategies to support families affected by substance use and facilitate family preservation. The Melbourne Injecting Drug User Cohort Study (SuperMIX) provides a unique opportunity to examine parent characteristics among a community-based cohort of people who inject drugs. The aim of our study was to describe the socio-demographic, health, drug use and parenting characteristics of SuperMIX participants and how these were associated with the removal of their children to OOHC. Given the gendered norms and expectations around parenting roles, we investigated for potential interactions by gender, to assess whether the association between these characteristics and child removal to out-of-home care differed by gender. We also examined the intergenerational association between parents' own childhood OOHC status (i.e. whether they were removed to OOHC) and that of their children.

2 | METHODS

2.1 | Study design, setting and study population

We used data from the SuperMIX study [28]. In summary, participants were recruited through a combination of respondent-driven sampling, snowball sampling and peer outreach from April 2008 to November 2020, with follow-up until March 2021. SuperMIX eligibility criteria included being age over 18 years, injected either heroin or methamphetamine at least six times in the past 6 months, and resident in Melbourne, Victoria. All participants provided written informed consent and were remunerated for study visits. Further details about the cohort and eligibility are reported elsewhere [28]. Ethics approval was received from the Victorian Department of Health Human Research Ethics Committee (approval number: 28.13.17) and the AIHW Ethics Committee (approval number: EO2013/3/48).

2.2 | Data collection

SuperMIX includes interviewer-administered questionnaires covering four main domains: socio-demographic characteristics, drug use characteristics, health and health service utilisation. Parenting questions were introduced in 2012 and asked annually for all participants. In 2017, a question about each participant's own childhood care history was introduced. For this analysis, we used participants' baseline survey responses to the parenting questions and the 2017 responses about their own childhood care experience.

2.3 | Outcome

The primary outcome variable of placement of at least one child currently in OOHC was determined by self-report. We assumed that the participants had understood the question in a way that aligns with the Australian definition of OOHC—that is overnight care for children under the age of 18 years who are deemed unable to live with their family because of safety concerns [6].

Participants were asked whether they had ever been a parent or caregiver. Other self-reported parenting data collected included the number of children, type of relationship, each child's co-residential status and whether child protection had ever been involved in their child(ren)'s care.

2.4 | Covariates

Socio-demographic characteristics examined included age, gender, Aboriginal and/or Torres Strait Islander status, employment status, accommodation status, level of education, co-resident spouse or partner, experience of assault and incarceration history. Drug use characteristics included age at first injection, main illicit drug of choice, frequency of injection and alcohol use (Alcohol Use Disorder Identification Test-C).

The Patient Health Questionnaire and the Generalised Anxiety Disorder (GAD-7) instruments were introduced in 2015 and used to measure depression and anxiety with ranges 0–4 and 5+ categorised as none-mild and moderate–severe depression/anxiety disorder, respectively [29]. Healthcare utilisation was indicated by self-reports of current drug treatment (opioid agonist treatment, OAT) and non-OAT primary care utilisation (general practice) within the past 12 months. Data on participant's own childhood care history included whether they were cared for by at least one parent, whether they were removed to out-of-home care as a

child and whether they were a member or child of the stolen generation. The stolen generation refers to a cohort of Aboriginal and Torres Strait Islander children who were forcibly removed from their families by governments, churches and welfare bodies to be raised in institutions or fostered or adopted by non-Aboriginal or Torres Strait Islander families [30].

A detailed description of key variables used in the analysis is provided in Table S1.

2.5 | Data analysis

We described the socio-demographic, drug use, healthcare utilisation and care history characteristics of participants stratified by parent or caregiver status. Differences in characteristics were tested using Pearson's chi square test for categorical variables or the Kruskal–Wallis test for continuous variables. For parents and caregivers, we described the care arrangements of their children stratified by parents' gender. We presented continuous variables with median and interquartile range and categorical variables with number and proportion.

To explore correlates associated with child placement to OOHC, we used bivariable and multivariable logistic regression models. Seventeen covariables were included in the multivariable model (see Table S1). Variables about participant's care history and anxiety/depression scores were excluded as they were not available until 2017 or 2015 onwards, respectively. We assessed potential interactions between gender and a range of relevant covariates (age, Aboriginal and Torres Strait Islander status, employment status, accommodation status, living with spouse or partner, incarceration, experience of assault, current OAT and number of children) using the likelihood ratio test to determine whether the addition of an interaction term yielded a significantly more accurate model [31]. A complete case approach to the regression analyses was adopted where participants with any missing data were excluded. Adjusted odds ratios with 95% confidence intervals were generated with statistical significance set at $p < 0.05$. All analyses were conducted using R Version 4.2.1 statistical software [32]. To assist with the interpretation of interactions, we predicted the odds of removal to OOHC by parents' gender for relevant variables based on the fitted model using the 'avg_predictions' function from the marginal effects package [33].

2.6 | Sub-analysis

A sub-analysis was conducted to determine the association between a parent's own childhood history OOHC and subsequent placement of their children in OOHC, given these data were only available for a limited subset of participants from 2017 onwards. We replicated the multivariable logistic regression model described above and added parent's own OOHC status as an additional covariate.

3 | RESULTS

Questions about parenting were asked of 1067 unique participants. Among these, the median age was 34 years (interquartile range 23.2–44.8), 358 (34%) were female or non-binary and 142 (13%) participants identified as Aboriginal and/or Torres Strait Islander. For the subset of participants recruited from June 2017 onwards with additional information about the participant's own care histories, 135 out of 563 (24%) reported being removed to out-of-home care as a child with the proportion increasing to 47% ($n = 55$) among Aboriginal and Torres Strait Islander participants. Fifty-four out of 89 Aboriginal and/or Torres Strait Islander participants (61%) reported being either a member or a child of the stolen generation (Table 1).

Of the 1067 participants, 611 (57%) reported being a parent or caregiver (hereafter referred to as parents). The vast majority reported being birth parents to at least one child ($n = 588$, 96%). Parents were more likely to be female, non-binary and Aboriginal or Torres Strait Islander, to have lower educational attainment, be unemployed, currently live in stable accommodation and to have experienced incarceration compared to participants who were not parents (Table 1). Further breakdown of demographic characteristics by both gender and parental status is available in Table S2.

A minority of parents reported residing with at least one of their children ($n = 160$, 26%), although more women and non-binary parents resided with at least one child (38%) compared to men (18%). More than half ($n = 339$, 56%) of parents reported child protection service involvement, increasing to 72% for female or non-binary parents. Almost half ($n = 220$, 49%) of parents who responded reported that their children were currently in OOHC (Table 2). Compared to parents who reported child protection involvement, but did not have their child(ren) removed, parents who had a child removed were more likely to be women, identify as Aboriginal and Torres Strait Islander, report a history of assault and have experienced out-of-home care themselves (Table S3).

3.1 | Correlates of child removal to out-of-home care

Complete case analysis for the multivariable analysis included 391 parents of 965 children. The odds of having

TABLE 1 Characteristics of participants stratified by parent or caregiver status.

	Not parent or caregiver ($N = 456$)	Parent or caregiver ($N = 611$)	Overall ($N = 1067$)[b]	*p*-value
Gender[a]				<0.001
Male	352 (77.2%)	356 (58.4%)	708 (66.4%)	
Female or non-binary	104 (22.8%)	254 (41.6%)	358 (33.6%)	
Age at interview	33.0 (9.00)	34.0 (12.0)	34.0 (11.0)	<0.001
Aboriginal and Torres Strait Islander				<0.001
Not Aboriginal and/or Torres Strait Islander	425 (93.2%)	497 (81.7%)	922 (86.7%)	
Aboriginal or Torres Strait Islander	31 (6.80%)	111 (18.3%)	142 (13.3%)	
Country of birth				0.0529
Australia	374 (82.2%)	528 (86.7%)	902 (84.8%)	
Outside of Australia	81 (17.8%)	81 (13.3%)	162 (15.2%)	
Education level ($N = 1026$)				<0.001
≤9 years	107 (24.7%)	209 (35.5%)	316 (30.9%)	
10–11 years	145 (33.4%)	218 (37.0%)	363 (35.5%)	
≥12 years	182 (41.9%)	162 (27.5%)	344 (33.6%)	
Currently employed				0.00403
Unemployed	371 (81.4%)	537 (87.9%)	908 (85.1%)	
Employed or full-time student	85 (18.6%)	74 (12.1%)	159 (14.9%)	
Unstable accommodation				<0.001
Unstable	232 (50.9%)	240 (39.3%)	472 (44.3%)	
Stable	224 (49.1%)	370 (60.7%)	594 (55.7%)	
Lives with spouse or partner ($N = 1056$)	72 (16.0%)	106 (17.6%)	178 (16.9%)	0.553
Ever incarcerated ($N = 1054$)	209 (46.4%)	350 (58.2%)	559 (53.2%)	<0.001
Ever assaulted ($N = 1043$)	205 (45.5%)	296 (50.3%)	501 (48.2%)	0.141
Age at first injection of drugs ($N = 1064$)	18.0 (6.00)	17.0 (4.00)	17.0 (5.00)	<0.001
Main illicit drug of choice ($N = 1033$)				0.489
Heroin	282 (64.1%)	385 (65.3%)	667 (64.8%)	
Amphetamines	81 (18.4%)	89 (15.1%)	170 (16.5%)	
Cannabis	55 (12.5%)	81 (13.7%)	136 (13.2%)	
Other	22 (5.00%)	35 (5.93%)	57 (5.53%)	
Injecting frequency in the past week ($N = 1001$)	5.00 (13.0)	5.00 (13.0)	5.00 (13.0)	0.166
AUDIT score ($N = 1062$)				0.362
Abstinent	197 (43.5%)	289 (47.7%)	486 (45.9%)	
8 or more (high-risk)	98 (21.6%)	127 (21.0%)	225 (21.2%)	
Less than 8 (low-risk)	158 (34.9%)	190 (31.4%)	348 (32.9%)	
Anxiety (GAD-7) ($N = 588$)[c]				0.199
Mild (score <10)	137 (57.3%)	179 (51.6%)	316 (53.9%)	
Moderate–Severe (score ≥10)	102 (42.7%)	168 (48.4%)	270 (46.1%)	
Depression (PHQ-9) ($N = 588$)[c]				0.275
Mild (score <10)	122 (51.5%)	160 (46.5%)	282 (48.5%)	
Moderate–Severe (score ≥10)	115 (48.5%)	184 (53.5%)	299 (51.5%)	
Currently on opioid agonist treatment (OAT)	206 (45.2%)	296 (48.4%)	502 (47.0%)	0.319

(Continues)

TABLE 1 (Continued)

	Not parent or caregiver ($N = 456$)	Parent or caregiver ($N = 611$)	Overall ($N = 1067$)[b]	*p*-value
Attended GP in the last 12 months (non-OAT) ($N = 1069$)	315 (69.2%)	410 (67.1%)	725 (68.0%)	0.503
Cared for by at least one parent ($N = 572$)[d]	92 (39.5%)	118 (34.9%)	210 (36.8%)	0.305
Ever removed as a child ($N = 563$)[d]	45 (19.7%)	90 (26.9%)	135 (24.0%)	0.0586
Member or child of stolen generation ($N = 89$)[d e]	8 (47.1%)	46 (63.9%)	54 (60.7%)	0.316

Abbreviation: AUDIT, Alcohol Use Disorder Identification Test.

[a]Non-binary participants were added to the female gender category to reduce the risk of disclosure/re-identification given small numbers.

[b]$N = 1067$ unless otherwise specified in the variable name column.

[c]Patient Health Questionnaire (PHQ-9) and the Generalised Anxiety Disorder (GAD-7) scores were only available from 2015 onwards.

[d]Additional questions about the participant's care history were only available from June 2017 onwards.

[e]There were 119 Aboriginal or Torres Strait Islander participants recruited from June 2017 onwards.

TABLE 2 Care arrangements among parents and caregivers by gender.

	Male ($N = 356$)	Female or non-binary ($N = 254$)	Overall ($N = 611$)
Number of children—median (IQR) ($N = 610$)	2.00 (2.00)	2.00 (2.00)	2.00 (2.00)
At least one co-resident child ($N = 606$)	64 (18.1%)	96 (38.2%)	160 (26.4%)
At least one child with another parent or caregiver ($N = 508$)	243 (78.6%)	139 (70.2%)	383 (75.4%)
Child protection involvement ($N = 605$)	156 (44.4%)	182 (71.9%)	339 (56.0%)
Child ever removed from care ($N = 451$)	83 (35.0%)	136 (63.8%)	220 (48.8%)
No access rights for at least one child ($N = 583$)	106 (31.3%)	43 (17.7%)	149 (25.6%)

Abbreviation: IQR, interquartile range.

a child removed to OOHC were three times greater among women than men (adjusted odds ratio [aOR] 3.32, 95% confidence interval [CI] 1.24, 9.15). Aboriginal and Torres Strait Islander parents were more likely than non-Aboriginal and Torres Strait Islander parents to report the removal of at least one child to OOHC (aOR 2.27, 95% CI 1.07, 4.94). Parents who had ever been assaulted were more likely to report having their child/ren removed to OOHC (aOR 2.16, 95% CI 1.25, 3.79). For each additional child, the odds of child removal to OOHC increased by 40% (odds ratio 1.40, 95% CI 1.18, 1.67) (Table 3).

There was a significant interaction between gender and incarceration ($p \leq 0.001$), indicating that the association between incarceration and removal to OOHC differed by gender, with incarceration more strongly associated with removal to OOHC in women than in men (aOR 7.03, 95% CI 2.3, 22.7). The multivariable model predicted odds of child removal of 0.46 (95% CI 0.38, 0.55) for non-incarcerated women or non-binary parents compared to 0.88 (95% CI 0.81, 0.95) for incarcerated women or non-binary parents, while the odds of child removal were more similar for non-incarcerated (0.30, 95% CI 0.20, 0.40) and incarcerated men (0.38, 95% CI 0.30, 0.45). Similarly, there was a greater protective association between being on current OAT ($p = 0.013$) and child removal to OOHC for women compared to men (odds ratio 0.34, 95% CI 0.11, 1.0). The multivariable model predicted odds of child removal rates of 0.75 (95% CI 0.67, 0.84) for women and non-binary parents not on OAT compared to 0.56 (95% CI 0.48, 0.64) for women and non-binary parents on OAT, while odds of child removal were similar for men not on OAT (0.35, 95% CI 0.27, 0.44) and on OAT (0.34, 95% CI 0.25, 0.43). There was no significant interaction between gender and experience of assault ($p = 0.238$) or the number of children ($p = 0.1234$), indicating that parents who experienced assault and parents with more children were more likely to have a child removed regardless of gender. There was also no significant interaction between gender and cohabitating with a spouse or partner ($p = 0.057$), age ($p = 0.123$), Aboriginal or Torres Strait Islander status ($p = 0.598$), employment ($p = 0.083$) or accommodation ($p = 0.179$), indicating that none of these covariates were significantly associated with child removal for any gender.

TABLE 3 Correlates for child removal to out-of-home care among parents who inject drugs; multivariable model includes interaction terms between incarceration and opioid agonist treatment with gender.

	Bivariate				Multivariable		
Characteristic	**N**	**OR**	**95% CI**	***p*-value**	**aOR**	**95% CI**	***p*-value**
Age at interview	451	0.99	0.97, 1.02	0.6	0.98	0.94, 1.02	0.2
Gender	450						
Male		—	—		—	—	
Female or non-binary		3.28	2.23, 4.84	<0.001	3.32	1.24, 9.15	0.018
Aboriginal and Torres Strait Islander status	448						
Not Aboriginal or Torres Strait Islander		—	—		—	—	
Aboriginal and/or Torres Strait Islander		3.28	1.93, 5.75	<0.001	2.27	1.07, 4.94	0.035
Country of birth	449						
Australia		—	—		—	—	
Outside of Australia		0.54	0.30, 0.94	0.032	1.17	0.52, 2.57	0.7
Education level	430						
≤9 years		—	—		—	—	
10–11 years		0.64	0.41, 1.01	0.055	0.72	0.40, 1.32	0.3
≥12 years		0.47	0.29, 0.75	0.002	0.58	0.29, 1.16	0.12
Currently employed	451						
Unemployed		—	—		—	—	
Employed or full-time student		0.30	0.15, 0.55	<0.001	0.49	0.19, 1.19	0.13
Unstable accommodation	451						
Unstable		—	—		—	—	
Stable		1.19	0.81, 1.75	0.4	1.19	0.68, 2.07	0.5
Lives with spouse or partner	446						
No		—	—		—	—	
Yes		2.18	1.32, 3.68	0.003	1.56	0.79, 3.12	0.2
Ever incarcerated	446						
No		—	—		—	—	
Yes		2.15	1.48, 3.15	<0.001	0.85	0.39, 1.83	0.7
Ever assaulted	439						
No		—	—		—	—	
Yes		2.63	1.79, 3.88	<0.001	2.16	1.25, 3.79	0.007
Age at first injection of drugs	448	0.97	0.92, 1.01	0.14	0.95	0.88, 1.01	0.13
Main illicit drug of choice	430						
Heroin		—	—		—	—	
Amphetamines		0.99	0.55, 1.75	>0.9	1.15	0.52, 2.54	0.7
Cannabis		1.06	0.61, 1.82	0.8	1.55	0.76, 3.17	0.2
Other		1.64	0.75, 3.72	0.2	2.07	0.72, 6.15	0.2
Injecting frequency in the past week	419	1.02	1.00, 1.03	0.050	0.99	0.97, 1.02	0.7
AUDIT score	450						
Abstinent		—	—		—	—	
8 or more (high-risk)		0.98	0.61, 1.59	>0.9	0.76	0.39, 1.47	0.4
Less than 8 (low-risk)		1.27	0.83, 1.95	0.3	1.28	0.70, 2.32	0.4

(Continues)

TABLE 3 (Continued)

Characteristic	Bivariate				Multivariable		
	N	OR	95% CI	*p*-value	aOR	95% CI	*p*-value
Currently on OAT	451						
No		—	—		—	—	
Yes		0.76	0.53, 1.10	0.15	1.62	0.76, 3.52	0.2
Attended GP in the last 12 months (non-OAT)	451						
No		—	—		—	—	
Yes		1.12	0.75, 1.68	0.6	0.70	0.39, 1.24	0.2
Number of children	450	1.54	1.35, 1.79	<0.001	1.40	1.18, 1.67	<0.001
Gender (female or non-binary)*Ever incarcerated					7.03	2.30, 22.7	<0.001
Gender (female or non-binary)*Currently on OAT					0.34	0.11, 1.0	0.051

Abbreviations: aOR, adjusted odds ratio; AUDIT, Alcohol Use Disorder Identification Test; CI, confidence interval; GP, general practitioner; OAT, opioid agonist treatment; OR, odds ratio.

3.2 | Intergenerational experiences of OOHC

Parents who themselves were removed to OOHC as a child were more likely to report child protection involvement ($n = 58$, 65%) compared to parents who were not removed as a child ($n = 123$, 51%). This group was also more likely to have a child removed from their care ($n = 49$, 85%) compared to parents who were not removed as a child ($n = 70$, 57%).

The sub-analysis examining the parental history of OOHC as a correlate included 156 parents of 495 children. The likelihood that their own child was removed to out-of-home care was four times greater among parents who were themselves removed as a child (odds ratio 4.05 95% CI 1.21, 15.1) (Table S4).

4 | DISCUSSION

In our cohort of people who inject drugs, those who identified as being parents were more socially disadvantaged than those who did not. Parents who inject drugs were more likely to have lower levels of educational attainment. Although the proportion of parents living in unstable housing was lower than non-parents, the proportion of parents who inject drugs living in unstable accommodation overall was considerably higher than in the general population [34]. Previous studies conducted among pregnant women in treatment for opioid use disorder in the United States and clients of a methadone maintenance program in Canada also described marked social disadvantage [19, 27]. Parents were equally as likely to experience moderate–severe levels of anxiety (48%) and depression (53%) compared to non-parents (43% and 49% moderate–severe anxiety and depression, respectively), at rates much higher than the general population. The similar results among parents and non-parents contrast with previous research from the United States indicating higher psychiatric and psychosocial functioning among parents in treatment for opioid use disorder compared to non-parents, specifically in terms of anxiety, social connectedness, loneliness and life satisfaction [35].

We also identified high rates of child protection involvement (56%) and placement into OOHC (49%) among parents who inject drugs, with even higher proportions among women or non-binary parents, most of whom reported child protection involvement (72%) and removal of a child under their care (64%). A previous study of mothers in treatment for heroin use in Australia reported that 64% had child protection involvement and 33% had at least one child in OOHC [36]. Among mothers in substance use treatment in the United States, 47% reported child protection involvement while 34% reported having at least one child in OOHC [37]. A more recent study from Australia among parents who smoke methamphetamine reported similarly low levels of co-resident children (12% of fathers and 43% of mothers had at least one co-resident child) [22]. While most of the literature on parental drug use and child protection focuses on mothers, we identified fathers as more likely to report no access rights to their child(ren) (31.3%) compared to mothers or non-binary parents (17.7%), suggesting that removal of parental rights may be an important, but neglected issue for men who use drugs.

Child protection involvement may be appropriate for some families, given evidence suggests a small, but statistically significant detriment to child well-being associated with parental substance use [38]. While our analyses did not investigate the indications nor appropriateness of

child protection involvement or child removal among participants, the results need to be interpreted within a context of pervasive stigmatisation of people who inject drugs [21, 39]. This stigmatisation has the potential to contribute to high rates of child removal through multiple mechanisms, including increased surveillance or stricter conditions at an interpersonal level, and the use of punitive rather than supportive policies at an institutional level [17, 40].

Being female or non-binary, Aboriginal or Torres Strait Islander, experiencing assault and having a higher number of children was associated with greater odds of having a child removed into out-of-home care. Our results are consistent with previous studies in which maternal substance use features more heavily in child protection involvement than paternal substance use [41]. Further explorations of interactions by gender indicated that incarceration was associated with a higher risk of child placement into OOHC for women compared to men, while treatment on OAT was more protective for women than for men. These differing associations by gender may reflect the higher likelihood for mothers to be a child's main carer; however, they may also relate to increased scrutiny faced by women based on social and political norms and expectations about parental roles [41, 42]. Surveys of community attitudes indicate high levels of stigma towards mothers who use illicit drugs, with one-third of participants in a US survey reporting a belief that a mother who is receiving treatment for their opioid use disorder during pregnancy should be arrested, while two-thirds felt that the infant should be removed from their care [35, 43]. While our study did not specifically consider intimate partner or family violence, the high prevalence of lifetime assault and the association with child placement into OOHC may reflect this risk. There is a known association between family violence and poor child health outcomes, which may be mediated directly through the perpetration of violence against the child as well as indirectly through impacts of marital conflict [44].

Our results indicate a higher risk of child placement to OOHC among Aboriginal and Torres Strait Islander parents, consistent with longstanding disparities in patterns of child protection involvement between Aboriginal and non-Aboriginal children. This occurs in the context of a history of colonisation and forced removals with a legacy of intergenerational trauma and ongoing experiences of racism and discrimination experienced by Aboriginal and Torres Strait Islander families [45]. The 2020 Family Matters report, coordinated by a group of eminent Aboriginal and Torres Strait Islander leaders and supported by a Strategic Alliance of over 150 Aboriginal and Torres Strait Islander and non-Indigenous organisations, proposed a roadmap to eliminate the overrepresentation of Aboriginal and Torres Strait Islander children in OOHC, which focuses on access to quality, culturally safe services and the right to self-determination [46].

A sub-analysis identified intergenerational risks for child placement to OOHC, with placement being two times higher among parents who were themselves placed in OOHC. Our findings are consistent with previous research demonstrating intergenerational continuity in responses to child removal/placement in OOHC [47, 48]. These findings are particularly relevant, given that self-reported placement in OOHC as a child was prevalent (24%) among our parents who inject drugs.

Overall, results reinforce the need for targeted psychosocial support and systems-level change addressing social disadvantage—housing, employment, family violence and mental health—to achieve equitable health outcomes for parents who inject drugs and their children [49]. Existing reviews support the role of integrated treatment programs, addressing both parenting and substance use, on parenting outcomes and to support parents to reduce their substance use if that is their goal [50–53]. Coordinated service access also impacts the health and well-being of parents and their children. Indeed, previous research indicates mothers who were treated in programs providing a high level of family-related or education/employment services were more likely to reunify with their children [54].

The gender-specific correlates highlighted in our research support previous calls for a focus on gender-focused research and gender-responsive care [55]. Given the gendered association between incarceration and child removal, progress towards drug decriminalisation is critical to addressing the high rates of child removal among women and non-binary parents identified in our cohort. Importantly, the disproportionate risk of child removal to OOHC among Aboriginal and Torres Strait Islander participants, despite adjustment for other correlates, highlights the need for tailored preventative approaches led by Aboriginal and Torres Strait Islander communities, which may include strengthening of protective cultural factors and addressing intergenerational trauma caused by government policies [56]. Approaches to addressing the needs of parents who inject drugs should also be informed by complementary existing literature identifying strengths or protective attributes within the family or environment that are associated with positive child health outcomes [16].

A key strength of this study is the inclusion of a wide range of psychosocial factors in the analysis, including parents' own experiences of OOHC. Furthermore, our study was unique in reporting on a community-based sample, which is likely to be more representative of

people who inject drugs in the community compared to previous studies recruiting from treatment programs.

However, our study has several limitations. Firstly, given the cross-sectional nature of our data, we cannot establish a temporal relationship between correlates and outcome. Ongoing follow-up with this cohort will provide further opportunity to confirm temporality. Our main outcome of removal to OOHC is based on parental report which is subject to reporting bias and may or may not align with the current Australian definition of OOHC—that is overnight care for children under the age of 18 years who are deemed unable to live with their family because of safety concerns. Similarly, we were not prescriptive with our definition of 'caregiver' so there may have been variation in how this was interpreted by participants. With a larger sample size, we could have considered investigating correlates for more specific outcome definitions, such as placement type (e.g., kinship or residential care) or placement at differing ages, given the differences in health and behavioural outcomes associated with these factors [57]. Our analysis was also limited by missing data, particularly for our primary outcome of child placement to OOHC (26% missing), resulting in reduced statistical power due to reduced sample size. While we are unaware of any systematic reason for the missing child placement status, there is also the risk that bias has been introduced. Finally, our dataset focusses on the characteristics of the parents who use drugs. Hence, we have limited information on the children themselves, including their ages, age at removal to OOHC or any health or behavioural outcomes.

5 | CONCLUSIONS

Our study highlights high rates of child placement in OOHC among parents who inject drugs. Sub-populations at higher risk of child removal within this cohort include women, Aboriginal and Torres Strait Islander parents, parents who have experienced assault, parents of multiple children and parents who were themselves removed to OOHC as children. Targeted services and structural changes are needed to address the systemic health and social inequities that underpin these associations. Further research is needed to establish evidence-based, culturally safe, trauma-informed, harm reduction-oriented and participant-driven policies and programs to address the high rates of out-of-home care among children of parents who inject drugs and to better support them to care for their children.

AUTHOR CONTRIBUTIONS

Jocelyn Chan undertook statistical analysis and drafted the initial manuscript, supervised by Paul Dietze. All authors contributed to the writing of the manuscript and approved the final version.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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