Examining the impact of an Accommodation and Support Intervention in reducing homelessness amongst Care Leavers in Australia: A hybrid type-1 Implementation-Effectiveness Study using Propensity Score methods

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Background: Young people transitioning from out-of-home care (OOHC) face elevated risks of adverse outcomes across multiple domains. Existing interventions have shown small or null effects when rigorously evaluated, highlighting the need to identify effective approaches to supporting care leavers.
Objective: Evaluate the impact of the Premier's Youth Initiative (PYI), an accommodation and support intervention, on homelessness outcomes for care leavers and explore its implementation.
Participants and setting: 295 eligible care leavers who received PYI in New South Wales, Australia between 2017-2020 and a matched comparison group drawn from locations where PYI was unavailable.
Methods: We undertook a hybrid type-1 implementation-effectiveness study that used linked administrative data from child welfare and homelessness services. Propensity score methods were applied to estimate the average treatment effect on the treated on ten measures of homelessness between ages 18-19. Implementation was explored through focus groups with participants, service providers and the funder to explore intervention acceptability as well as barriers and facilitators.
Results: Overall PYI had no impact on any of assessed homelessness measures—with treatment effects consistently near zero. Subgroup analyses showed that Aboriginal participants experienced worse outcomes than non-Aboriginal peers. Participants who experienced homelessness during OOHC appeared to benefit more from PYI, relative to those who didn't, but estimates were inconsistent. Implementation analysis identified high acceptability among participants but revealed substantial barriers, particularly inadequate leaving care planning.
Conclusions: Interventions like PYI may need to commence earlier, be provided at greater intensity, or be targeted more effectively to the most vulnerable care leavers.

Keywords: foster care, emerging adulthood, child welfare, homeless, quasi experimental methods, program evaluation

Introduction

Background

Children and adolescents who experience abuse or neglect by their parents or carers can be removed from their families and placed in out-of-home care (OOHC) arrangements to protect their safety and wellbeing. If they are not restored to their families, young people will remain in OOHC until formal support ceases; the timing of which varies between and within countries but typically ends between the ages of 18 and 21 (**?**). These youth have often experienced significant trauma and disruption before, and during, their time in OOHC through multiple placements, changes in schools, and irregular family contact (**?**). These compounding disruptions can exacerbate difficulties in forming stable relationships, maintaining educational continuity, and developing key life skills (**?**). Once young people 'age out' of OOHC, they become care leavers. Many care leavers lack the material resources, social networks, and independent living skills needed to thrive (**?**). Consequently, care leavers tend to have lower educational attainment and higher rates of unemployment, homelessness, criminal behaviour, financial stress, and physical and mental health challenges (**?**; **?**) relative to peers without care experience. Moreover, the assistance they receive before or after leaving OOHC frequently proves insufficient to prevent these adverse outcomes (**?**).

In Australia, findings from the Australian Institute of Health and Welfare (AIHW) highlight challenges faced by care-experienced young people (CEYP). Using linked data from state and national sources, the AIHW (**?**, **?**, **?**) reported that CEYP between 18 and 30 years of age were 9-10 times more likely to access Specialist Homelessness Services (SHS) compared to peers in the general population. This peaked at age 18, with 21% of CEYP requiring SHS. CEYP were also three times more likely to receive income support payments between the ages of 16 and 30. Nearly half (46%) of CEYP received both income support and SHS, compared to 5.7% of non-care peers—an 8.1-fold difference. The use of both services was 1.6 times higher among CEYP with experience of residential care (66%) compared to foster care (41%). Aboriginal CEYP (59%) were 1.4 times more likely than their non-Aboriginal counterparts (41%) to access both forms of support (**?**).

Cashmore and Paxman (**?**) found New South Wales (NSW) care leavers experienced high rates of homelessness (39%), housing instability poor educational and employment outcomes—with only 42% completing secondary school and 25% in full-time work or study—and widespread mental health problems affecting nearly half of respondents.

Policy and practice context

Since this study was conducted, NSW has expanded support for care leavers. Until age 21 they can now receive either a) a financial allowance to remain with their carer, or b) a payment to help cover accommodation and living expenses for those living independently (**?**). These supports are typically characterised as extended care in the literature (**?**), however the NSW Department of Communities and Justice (DCJ) does not use or endorse this term to describe this support. We adopt it in this paper for consistency with the literature. In addition to these supports, the Specialist Aftercare Program provides intensive casework, mentoring, and tailored support for care leavers with moderate to high needs (**?**).

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Author roles were classified using the Contributor Role Taxonomy (CRediT; https://credit.niso.org/) as follows: David Taylor: formal analysis, writing, visualisation, conceptualisation, methodology, project administration; Jessica Roberts: data curation, conceptualisation, methodology, editing; Vanessa Rose: conceptualisation, methodology, funding acquisition, project administration, editing; Alex Gyani: conceptualisation, editing, methodology; Aron Shlonsky: conceptualisation, editing, methodology, supervision, editing

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Existing evidence

A recent systematic review by Taylor et al. (**?**) found limited evidence for transition support programs (TSPs), with most showing small or null effects when synthesised in a meta-analysis. The review examined the impact of two broad categories of support provided to care leavers: TSPs and extended care. The review identified only 14 studies that used experimental or observation methods of sufficient methodological quality to make causal claims about effectiveness, with all but one conducted in the United States. Independent Living Programs (ILPs), the most common type of TSP, showed no meaningful impact across housing, education, employment and life skills outcomes. Although some individual studies showed promising results, these effects were modest.

The review found extended care policies appear more promising, though evidence was limited to two observational studies from the United States. In Washington, extended care led to substantial reductions in homelessness and improved educational outcomes (**?**). Similarly, in Illinois, extended care led to small improvements in educational attainment and reduced criminal justice involvement, although these effects diminished over time (**?**). Overall, the review identified that while some interventions showed promise, particularly extended care, the scope and strength of included evidence is insufficient to strongly recommend any included approach.

Subsequent to the completion of the aforementioned systematic review, two recent studies have examined the impact of extended care in the United Kingdom (**?**) and the United States (**?**): both found persistent reductions in homelessness among care leavers. Another recent study of a TSP from the UK, Lifelong Links, also showed a reduction in homelessness amongst care leavers (**?**). These findings add to the growing, though still limited, evidence suggesting that both extended care policies and targeted TSPs can potentially help reduce homelessness among care leavers.

Rationale

We used a hybrid Type-1 implementation-effectiveness study design to assess the effectiveness of the intervention, while also collecting information about its implementation (**?**). Our rationale for this is twofold. Firstly, the use of causal methods to assess the intervention's impact is crucial given that the intervention is novel and that evidence on the effectiveness of interventions for care leavers remains limited (**?**). Secondly, the intervention had multiple active components and was delivered to a vulnerable population within a complex service system where a wide range of implementation barriers could have potentially affected outcomes (**?**). By collecting information about the intervention's implementation, we can understand not just whether the intervention works, but also what factors may have influenced its success.

Objectives

This study aims to estimate the impact of the Premier's Youth Initiative (PYI) on homelessness outcomes among youth leaving OOHC at age 18, while examining aspects of its implementation. The primary objective is to estimate the average treatment effect on the treated (ATT) by comparing utilisation of SHS in the 12 months post-OOHC between PYI participants and a statistically-matched comparison group that received usual services. A secondary objective is to assess intervention acceptability among PYI recipients and identify of barriers and facilitators to implementation from the perspectives of service providers and the funder.

Methodology

Study design and setting

This study used propensity score methods to examine intervention effectiveness. Additional aspects of the intervention's implementation were explored through focus groups and interviews with service providers, the funder and participants.

An evaluation of PYI was completed by the authors in 2020 and was published previously as a technical report (**?**). That report relied on data with variable, and limited, follow-up periods after participants left OOHC—necessitating the use of time-to-event modelling. This study utilises an updated administrative data extract that allows assessment of homelessness outcomes for all participants 12 months after leaving OOHC at age 18.

We followed the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines (**?**) and the RECORD (REporting of studies Conducted using Observational Routinely-collected Data) extension (**?**). A completed STROBE-RECORD checklist is provided in the supplementary material (Table S1) (**?**). Additionally, we adhered to Thoemmes and Kim's Thoemmes and Kim (**?**) reporting guidance for studies using propensity score methods (Table S2).

Intervention description and implementation

PYI was developed and funded by DCJ. PYI was delivered by seven consortia of non-government agencies (NGOs) that provided either support services, housing services, or both. During the evaluation period (2017-2020) PYI was available in ten administrative districts used by DCJ: Central Coast, Hunter, Illawarra Shoalhaven, Mid-North Coast, Nepean Blue Mountains, New England, Northern NSW, Southern NSW, South-Western Sydney, and Western NSW.

The PYI intervention featured four core components: (1) leaving care planning; (2) prosocial network development; (3) education and employment mentoring; and (4) transitional support. These components are delivered through the provision of personal advice, education and employment mentoring, housing, transitional support and brokerage for additional supports.

Three key worker roles—Personal Advisor (PA), Education and Employment Mentor (EEM), and Transition Support Worker (TSW)—collaborate to provide support services tailored to the needs of care leavers. While all participants received access to a PA and EEM, access to TSW and/or housing was rationed based on need—additional information regarding this is available in the technical report (**?**).

Service providers had significant latitude in the way they implemented PYI. All intervention components could be provided by a single agency, or in consortia with others providing specialist services (e.g., housing providers). Sites had the freedom to assign roles and responsibilities across the PA, EEW and TSW roles in any manner they saw fit. Client facing staff were expected to have completed training in motivational interviewing, trauma and addictions and trauma-informed practice (**?**).

As of 2025, the intervention is provided in the same catchments under the name Youth Initiative (**?**).

Participants and recruitment

Intervention inclusion and exclusion criteria

To be eligible, young people must be aged between 16 years, 9 months and 17 years, 6 months and meet at least one of the following four inclusion criteria: a) they must either be in residential OOHC, b) have a history of placement instability, c) be in a permanent OOHC placement, or e) have been in care for 12 months or longer (see Table S3). Young people who are incapable of living independently due to support needs were excluded.

Intervention recruitment

Young people who met one or more of these criteria were identified through DCJ's administrative data systems, with PYI providers then approaching them directly to invite them to participate in the intervention. No other referral pathways existed.

Evaluation recruitment

Care leavers who commenced PYI between 1 July 2017 and 30 March 2020 were included in the quantitative analysis. A convenience sample of PYI participants, PYI service providers and DCJ stakeholders were invited to participate in interviews or focus groups to understand the intervention's implementation. Detailed information about recruitment and consent procedures is available in the supplementary material (sections S3.2-S3.4).

Ethical approval

All research activities were approved by the Monash University Human Research Ethics Committee (MUHREC: #18216). All participants who participated in primary data collection provided their informed consent. This work was conducted under a Research Agreement with DCJ, who retain ownership of unit-record data used in this analysis. Unit-record data was stored and analysed within Monash University's Secure Research Platform. Quantitative analysis was undertaken using R version 4.3.3 (**?**).

Data and measures

This study used linked unit-record administrative data from two DCJ-held data assets: ChildStory — which captures child and family interactions with the child protection (1 January 1998 to 30 June 2021) and OOHC systems (1 January 1998 to 30 June 2021), and the Client Information Management System (CIMS) — which records interactions with SHS (1 July 2015 to 30 June 2021). Individual records across data assets were linked using a statistical linkage key generated by DCJ. No records were excluded due to concerns about data quality. All PYI participants were identified in ChildStory.

The primary goal of PYI was to reduce homelessness amongst care leavers after exiting OOHC at age 18. Accordingly, the key outcome interest was homelessness—as measured by the use of SHS for housing-related reasons. SHS use was tracked between ages 18 and 19, with outcomes including SHS use on 18th and 19th birthdays, new (i.e., commencing after age 18) and ongoing (i.e., commenced before age 18) homelessness spells, unsheltered homelessness episodes, and need for short-term accommodation (all binary measures). Given the low frequency of such events, we also measured duration of SHS spell (continuous measure) and the number of distinct SHS spells (count measure).

Data on the use of SHS for housing-related reasons was sourced from CIMS. Given the nature of service provision—where individuals may be referred between SHS providers within a continuous support episode—we aggregated service interactions across providers into 'spells' to reflect uninterrupted periods of homelessness assistance. A 'housing-related' spell was defined as meeting any of the following criteria: (1) current or previous week residential dwelling was a tent, improvised dwelling, no dwelling (in the open), or motor vehicle, OR (2) sleeping rough or in non-conventional accommodation in the last week, OR (3) in short-term or emergency accommodation in the last week, OR (4) requiring short-term accommodation. Demographic characteristics and details of an individual's OOHC history were sourced from ChildStory.

Identification and Estimation Strategy

Our identification strategy capitalises on two key features of the intervention's implementation. Firstly, PYI was a pilot offered exclusively in distinct geographical catchments within NSW. This spatial restriction provides a natural comparison pool — care leavers in similar policy and administrative contexts but without access to the intervention. Secondly, the study was initially envisioned to be a randomised controlled trial (RCT) with eligibility determined by four explicit criteria recorded in administrative data. Although the RCT design did not proceed, the four intervention eligibility criteria (denoted as X_i) were retained to form a well-defined assignment mechanism. An individual was assigned to treatment if, and only if, they met one of the four eligibility criteria and resided in a location where PYI was offered. The transparent, administratively determined selection process provides a rare opportunity to credibly invoke a selection-on-observables assumption.

We use the potential outcomes framework (**?**) to specify our causal question. Let $Y_i(1)$ and $Y_i(0)$ denote individual (i)'s potential outcomes under intervention ($D_i = 1$) and comparison ($D_i = 0$) conditions, respectively. The observed outcome is therefore:

$$Y_i = D_i Y_i(1) + (1 - D_i) Y_i(0)$$

Our estimand of interest is the average treatment effect on the treated (ATT):

$$ATT = E\left[Y_i(1) - Y_i(0) \mid D_i = 1\right]$$

Identification of the ATT requires satisfying the selection-on-observables assumption:

$$Y_i(1), Y_i(0) \perp D_i \mid X_i$$

which states that, conditional on X_i, potential outcomes are independent of treatment assignment. Given the explicitly defined selection criteria and the use of detailed administrative data, we argue that this assumption is plausible.

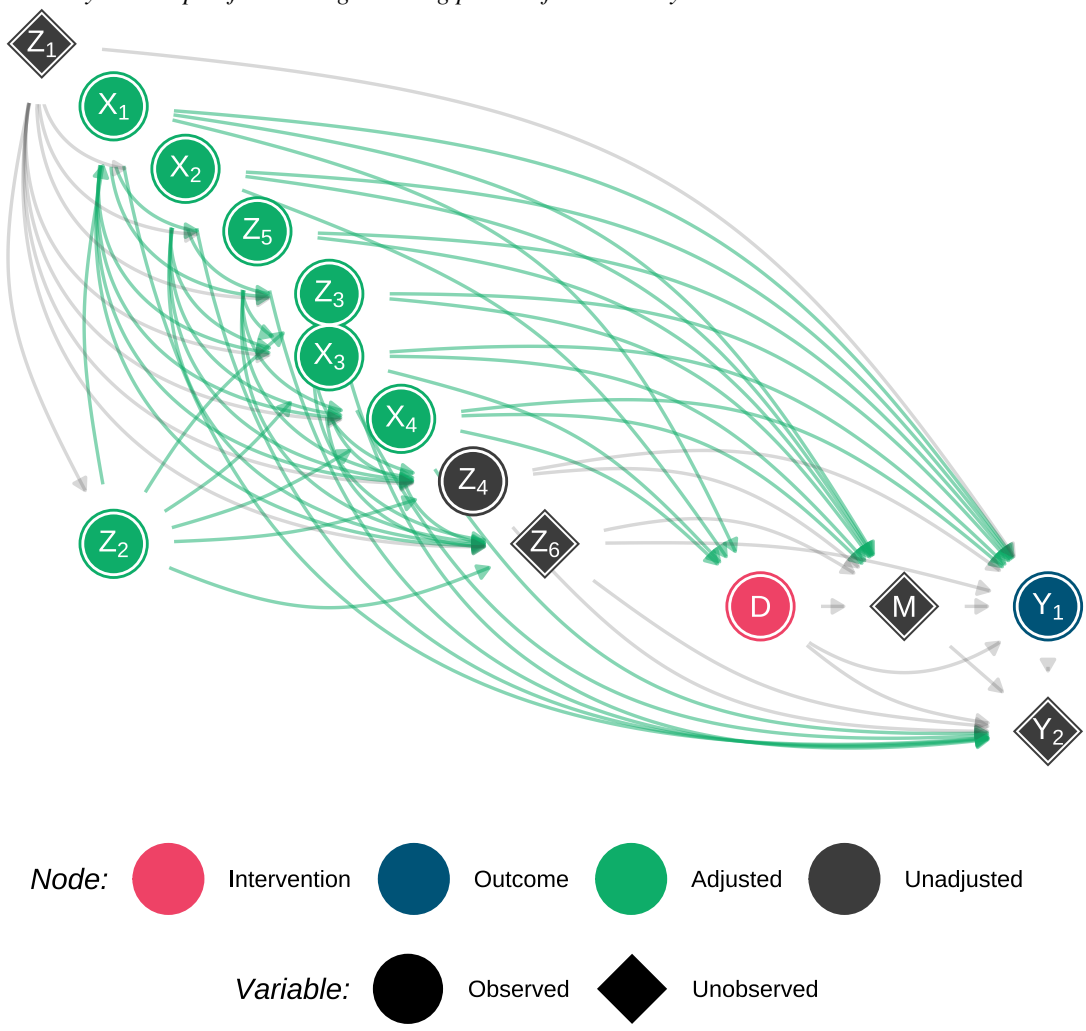
To test this assumption, we developed a directed acyclic graph (DAG) that models the data generating process for this study (Figure **??**). The DAG was refined during a three-round Delphi process with a panel of experts (n=20) with content and technical expertise (**?**). The minimal adjustment set derived from this DAG using the backdoor criterion aligned exactly with the intervention's eligibility criteria X_i. This means that conditioning on the intervention criteria is theoretically sufficient to block all confounding relationships between the treatment and outcome of interest.

Propensity Score Matching Specification

We implemented propensity score matching using a series of iterative specifications to achieve covariate balance. Propensity scores were estimated using a generalised additive model (GAM) with a probit link function using the `MatchIt`

Figure 1

Directed Acyclic Graph of the data generating process for this study



Key:

Y_1: Use of SHS after age 18, Y_2: Other (unobserved) outcomes, D: Intervention (PYI), M: Mediators

X_1: 12 months or more in OOHC, X_2: History of placement instability, X_3: In residential care placement during eligibility period,

X_4: In permanent care placement during eligibility period, Z_1: Factors that occured before or during OOHC, Z_2: Parental responsibility of the Mi

Z_3: In kinship care placement during eligibility period, Z_4: Self-placed from placement after age 16, Z_5: Use of SHS between age 16 and 18, Z_6:

package (**?**). The model included both our minimal adjustment set X_i derived from our DAG and four additional pre-treatment covariates Z_i that improved balance without introducing confounding or collider bias (see Figure S1).

We applied two matching approaches: 1) 1:1 Nearest Neighbour, where each treated unit was matched to a single comparison unit with the closest propensity score, and 2) full matching, which optimally partitions the full sample into matched sets containing one treated unit and a variable number of weighted comparison units. In both specifications, matching was done without replacement and comparison units outside the region of common support were trimmed. No treated units were excluded.

Treatment Effect Estimation

Treatment effects were estimated for binary, count, and continuous outcome measures using logistic, Poisson, and linear regression models respectively. Each model included the minimal adjustment set of covariates derived from our DAG X_i, as it has been shown to reduce dependence on the specification of the matching model, while potentially increasing precision and reducing bias from any residual im-