

Systematic review of organisation-wide, trauma-informed care models in out-of-home care (OoHC) settings

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Abstract

Trauma in early childhood has been shown to adversely affect children's social, emotional, and physical development. Children living in out-of-home care (OoHC) have better outcomes when care providers are present for children, physically, psychologically, and emotionally. Unfortunately, the high turnover of out-of-home carers, due to vicarious trauma (frequently resulting in burnout and exhaustion) can result in a child's trauma being re-enacted during their placement in OoHC. Organisation-wide therapeutic care models (encompassing the whole organisation, from the CEO to all workers including administration staff) that are trauma-informed have been developed to respond to the complex issues of abuse and neglect experienced by children who have been placed in OoHC. These models incorporate a range of therapeutic techniques, and provide an overarching approach and common language that is employed across all levels of the organisation. The aim of this study was to investigate the current empirical evidence for organisation-wide, trauma-informed therapeutic care models in OoHC. A systematic review searching leading databases was conducted for evidence of organisation-wide, trauma-informed, out-of-home care studies, between 2002 and 2017. Seven articles were identified covering three organisational models. Three of the articles assessed the Attachment Regulation and Competency framework (ARC), one study assessed the Children and Residential Experiences programme (CARE), and three studies assessed The Sanctuary Model. Risk of bias was high in six of the seven studies. Only limited information was provided on the effectiveness of the models identified through this systematic review, although the evidence did suggest that trauma-informed care models may have significantly positive outcomes for children in OoHC. Future research should focus on evaluating components of trauma-informed care models and assessing the efficacy of the various organisational care models currently available.

KEYWORDS

abuse, looked after children, neglect, OoHC, organisation-wide, trauma-informed care

1 | INTRODUCTION

Previous research has consistently demonstrated that trauma can adversely affect children's social, emotional, physical, and neurological development, especially when trauma is experienced during the critical period of early childhood (van der Kolk, 2007; Siegel, 2007). Traumatic life experiences can be detrimental for children's health and social outcomes, behaviour, and mental health (Bloom, 2016), and can profoundly impact on the child's well-being across their life-course (Hummer, Dollard, Robst, & Armstrong, 2010). Trauma occurs when an individual experiences an intense event that harms or threatens harm to their physical or emotional well-being or to someone close to them, for example, a family member or friend (van der Kolk, 2007). Trauma has commonly been categorised as either a single event trauma (a life threatening event with potential to cause harm or injury) or complex trauma (interpersonal danger, violence, or abuse, usually over multiple incidences of extended duration) (van der Kolk, 2003). As early development is embedded in the context of the care-giving relationship, trauma also has a strong influence on the care-giving system, which particularly affects children living outside of the family home (Arvidson et al., 2011).

In 2013–2014, around 51,539 Australian children lived in out-of-home care (OoHC), a rate of 9.8 children per 1,000 (AIHW, 2017). OoHC is a broad term that may refer to a formal or informal arrangement, and long- or short-term care (AIHW, 2017). OoHC is generally defined in Australia and the United States as (a) foster care, (b) relative or kinship care, (c) family group homes, (d) residential care, and (e) independent living (Barth, Greeson, Zlotnik, & Chintapalli, 2011; Department of Families, Housing, Community Services and Indigenous Affairs, 2011). Typically, children and young people are moved into OoHC due to physical, sexual or emotional abuse, neglect, or domestic violence (Department of Families, Housing, Community Services and Indigenous Affairs, 2011). These children are therefore likely to have experienced high rates of complex trauma and adversity (Fraser et al., 2014). Failure to understand and address issues arising for children with a traumatic history can inadvertently aggravate symptoms, and traumatise the child further (Murphy, Moore, Redd, & Malm, 2017). Figure 1 displays the process of a child being placed in OoHC.

Research suggests that survivors of trauma experienced during childhood may be more resilient if they experience positive and considerate care providers (Esaki et al., 2013). However, carers can be at high risk of experiencing vicarious trauma from caring for children in OoHC (Victorian Auditor-General, 2014) (vicarious trauma is defined here as the effect on a direct carer from working with clients' traumatic experiences (Australian Institute of Family Studies, 2007)). Difficulties arising from caring for traumatised children can create an environment where a child's trauma is reconstructed during their OoHC stay, making it harder for care-givers to build meaningful relationships with children (Esaki et al., 2013; Farragher & Yanosy, 2005). Unfortunately, and despite best intentions, there is often a high turnover of out-of-home carers due to burnout and exhaustion, which can directly affect the child's experience of care-giving (Middleton & Potter, 2015).

What is known about this topic

- Children living in OoHC have frequently experienced complex relational trauma
- When living in OoHC, children have better outcomes when care providers are present for children, physically, psychologically, and emotionally.
- Organisation-wide, trauma-informed care models have been proposed to help ameliorate the effects of trauma on children and carers. Although these models are promising, there is a lack of evidence regarding the efficacy of these models.

What this paper adds

- Using implementation science criteria, empirical evidence on organisation-wide, trauma-informed care models was found to be weak, with high risk of bias.
- The initial evidence presented suggests that the application of trauma-informed care models may have significantly positive outcomes for children in OoHC.
- Future research is urgently required to provide empirical evidence for organisation-wide, trauma-informed care models.

Each person in an organisation, staff member, carer, or client, has their own adaptation to the stress, trauma, and adversity they have experienced in their lives (Bloom, 2016). Because of the inter-relationship between each level in an organisation, the adaptation to stress that each person brings frequently results in increased levels of stress across an organisation. Under stress, an organisation may respond with a crisis intervention rather than looking more closely at prevention activities. This process is shown in Figure 2.

Protective services and community agencies worldwide have been challenged in how best to address the needs of children who have been traumatised by abuse, neglect, violence, and loss (Macdonald & Millen, 2012). Typically, a therapeutic care approach is recommended, which incorporates multiple types of interventions, often stemming from a variety of therapeutic techniques or frameworks presented and employed in varying ways. Although definitions vary, therapeutic care in Australia is defined as intensive, time-limited care that responds to complex issues of abuse and neglect, as well as separation from family, and is provided to a child or young adult who is in statutory care (McLean, Price-Robertson, & Robinson, 2011).

To better integrate services provided to children in OoHC, it has been proposed that system-wide changes in organisations can be made so that they are trauma-informed at an organisational level. This approach aims to provide an overarching strategy and a common language that is employed across all levels of the organisation, including staff, carers, children, and young people (Wall, Higgins, &

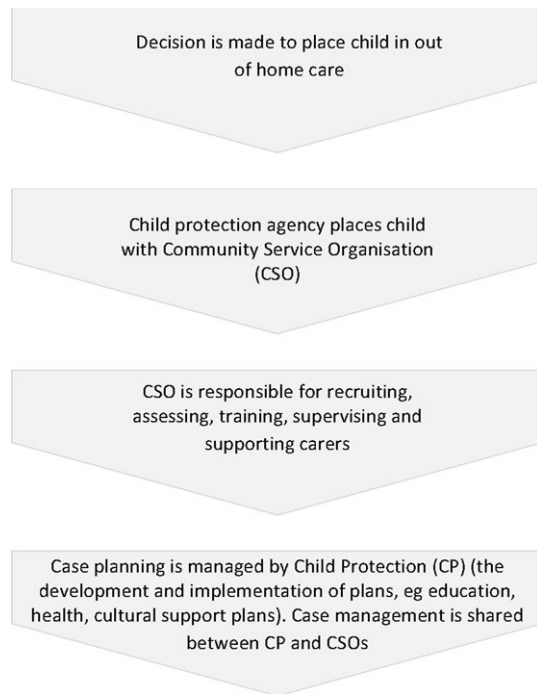


FIGURE 1 Process of a child moving into OoHC

Hunter, 2016). Trauma-informed organisations can be constructed using a whole-of-system recognition of the impact of trauma, and the development of an understanding of trauma in the workforce (including carers) (Murphy et al., 2017). The overall aim of this approach is to reduce the experience of trauma (including previous, ongoing and vicarious trauma) for staff, carers, and, most importantly, children and young people (Bloom, 2016).

While there are many benefits to employing a trauma-informed approach in OoHC, there had been a lack of definition, and a large degree of flexibility in how trauma-informed approaches are constructed (Wall et al., 2016). In an attempt to define what is meant by trauma-informed care, Hanson and Lang (2016) identified components that target three main domains: (a) 'workforce development', which included workforce awareness, training and understanding of secondary traumatic stress, (b) "trauma-focused services," encompassing evidence-based practices and standardised screening, and (c) "organizational environment and practices," including safe physical environments, staff collaboration, defined policies, and leadership, as represented in Figure 3.

There has been increased interest in organisation-wide (encompassing the whole organisation, from the CEO to all workers including

administration staff), trauma-informed care models over the last decade (Becker-Blease, 2017). Nonetheless, the implementation of these practices is still preliminary (Beyerlein & Bloch, 2014), and there has been a lack of empirical research on these models (Hanson & Lang, 2016). Systems' change in organisational culture and communities is complex, requiring effort from multiple stakeholders, and it can be difficult to attribute change from specific interventions within organisations or systems, and how the organisation as a whole may have transformed (Esaki et al., 2013). Continued organisational restructuring takes time, and can result in 'change fatigue' (Murphy et al., 2017). Despite these difficulties, assessing trauma-informed care models is essential, as these models are being widely adopted in OoHC settings (Bloom, 2017).

The overall aim of the current study was to examine the empirical evidence available for organisation-wide, trauma-informed care models. In order to address this aim we systematically evaluated the evidence for organisation-wide, trauma-informed care models in OoHC. While the papers that have been included in this review are important contributions to the literature in describing trauma-informed organisational change initiatives and their outcomes, this review focuses specifically on the strength of the research designs and the empirical evidence that can be derived.

2 | METHODS

2.1 | Information sources

Papers were sourced through a search of eight databases: Scopus, Academic Search Complete, CINAHL with full text, Medline complete, Psych Articles, Psych Info, Social Work abstracts, and EMBASE for the time period between 31 April 2002 and 31 April 2017. The search was organised around subheadings that were generated from the research aim by the first author (CB), and reviewed and endorsed by the senior author (HS). Search terms are shown in Box 1. A total of 176 articles were obtained from the database search (after the removal of 222 duplicates). Seven additional articles were obtained from other sources (google scholar, searching reference lists). A total of 183 abstracts were reviewed for suitability by the first author.

2.2 | Eligibility criteria and study selection

Articles were included if they were peer-reviewed, published in English, and referred to children aged from birth to adolescence

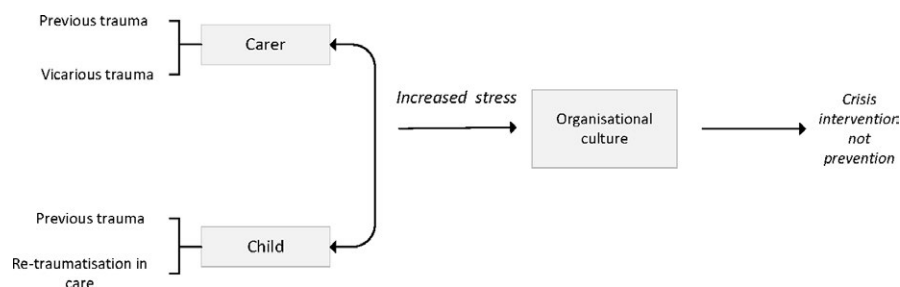


FIGURE 2 The impact of trauma on organisational response

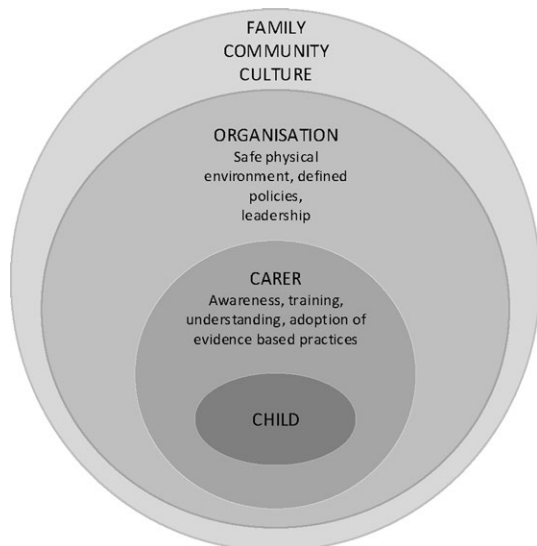


FIGURE 3 Factors in an organisation-wide, trauma-informed model

(0–17 years). The population was children living in OoHC (as defined in the introduction). Studies needed to evaluate system- or organisation-wide programmes, and to present empirical evidence. Studies were excluded if they assessed trauma-informed care programmes not implemented at the organisational level. Titles and abstracts were checked against the inclusion criteria, and if relevant, the full-text version was sourced. The first two authors read and discussed the papers until all the selected papers were mutually agreed upon.

2.3 | Risk of bias assessment

Papers that met inclusion criteria were assessed for the quality of methodology using the criteria outlined by Thomas, Ciliska, Dobbins, and Micucci (2004). Using these criteria, the assessment of the methodological quality was rated as strong, moderate, or weak, for six components: selection bias, design, confounders, blinding, data collection methods, withdrawals, and dropouts. After evaluation on each of the six components, each paper was rated on the combined results. Papers with no weak ratings and four or more strong ratings were considered strong; papers with less than four strong ratings, and one or less weak rating were considered moderate, while papers with two or more weak ratings were considered weak. Papers that were rated as either moderate or strong were then assessed on two further components: integrity of the intervention (percentage of study participants receiving the intervention as designed), and utilising an appropriate statistical analysis methodology (including intention to treat analysis).

2.4 | Data extraction

Thomas et al. (2004) recommended only analysing papers rated as either moderate or high in the risk of bias assessment. In the current study, only one study met the risk of bias criteria. However, in order

to describe and evaluate the three models covered by the selected papers, information from all papers that met the inclusion criteria have been included in the current review. Data were extracted using the standardised format as per Thomas et al. (2004) for the following variables: funding source; number of participants by group and number of dropouts; descriptions of the target population, intervention and study outcome; plus the length of follow-up. An extra field was added to include methodology in this table. The extracted information is presented in Table 1. Papers were synthesised narratively; meta-analysis not used as outcome measures in the papers were not comparable.

3 | RESULTS

Of the initial 183 abstracts sourced, evaluation of titles and abstracts revealed 37 papers which may have met the inclusion criteria, of which seven articles were retained after assessing the full text, as shown in Figure 4. Supporting Information Table S1 provides details of the excluded studies, with reasons for exclusion. All seven papers included in this review were from the United States, and all presented empirical data from OoHC populations from one of three organisation-wide, trauma-informed models. The three models were: (a) Attachment Regulation and Competency framework (ARC), three papers (Arvidson et al., 2011; Hodgdon, Blaustein, Kinniburgh, Peterson, & Spinazzola, 2016; Hodgdon, Kinniburgh, Gabowitz, Blaustein, & Spinazzola, 2013); (b) the Children and Residential Experiences programme (CARE); one paper (Izzo et al., 2016); and (c) The Sanctuary Model, three papers (Bloom et al., 2003; Kramer, 2016; Rivard, Bloom, McCorkle, & Abramovitz, 2005).

3.1 | Risk of bias

Only one of the seven papers was rated as moderate on the risk of bias assessment (Izzo et al., 2016), with all other studies rated as weak. Five of the seven papers we assessed had weak study designs (Arvidson et al., 2011; Bloom et al., 2003; Hodgdon et al., 2013, 2016; Kramer, 2016), and only one study accounted for confounding variables (Izzo et al., 2016). No studies mentioned blinding of participants or researchers, and all except one study (Izzo et al., 2016) were rated as weak on withdrawals/dropouts of participants from studies. Data collection methods were rated between weak and moderate (please contact the authors for further information on the risk of bias assessment.).

3.1.1 | Attachment, Self-Regulation, and Competency (ARC) Model

The Attachment, Self-regulation, and Competency Model aims to provide a theoretically driven and flexible framework for organisations that provide services for traumatised children (Hodgdon et al., 2016). Included in the organisation-wide approach are three levels, the individual child, the child's family or care-givers,

Box 1 Search terms**CONCEPT 1: Trauma**

"trauma-informed" OR "trauma informed"

AND CONCEPT 2: Out-of-home care

"foster care" OR "child welfare" OR "out of home care*" OR
"looked after child*" OR "residential care*" OR "group home*" OR
"kin* care" OR "relative care"

AND CONCEPT 3: Theory or intervention

"framework*" OR "model" OR "theor*" OR "conceptual frame-
work*" OR "intervention*" OR "program*" OR "strateg*" OR
"prevention" OR "treatment" OR "therap*" OR "organi?ation*" OR
"organi?ational climate" OR "organi?ational culture" OR
"organi?ational social context"

and the organisational culture. Within this framework there are opportunities to incorporate various interventions for use by practitioners, which may be individual, family, or system based (Kinniburgh, 2005). The ARC model provides guidelines on building therapeutic culture for the child within organisations, so that the child's ability to heal from trauma may be enhanced. The model focuses on: (a) building healthy attachments between children and their care-givers, particularly family members, (b) supporting children to develop skills to manage their emotions and physiological states, and thus increasing the child's self-regulation, (c) building the child's competency, by increasing their capacity and skills, and (d) working with children to integrate experiences of trauma, thereby increasing their self-understanding (Kinniburgh, 2005). These aspects are perceived in an organisational context, as this model highlights the importance of system-wide changes to support effective outcomes for children, as well as recognising that children need individually tailored programmes to support their needs.

Three of the seven studies included in the current review evaluated the ARC model (Arvidson et al., 2011; Hodgdon et al., 2013, 2016). In the first of these papers, Arvidson and colleagues used a naturalistic study design to measure preliminary evidence of the effectiveness of the ARC model on children in the Alaskan child protection system. The intervention in this study used the ARC model to help children who had been exposed to trauma to have the opportunity to process their experiences in an appropriate way for their emotional and cognitive development. The ARC framework was applied in three ways: (a) increasing the ability of the care-giver to be attuned with the child so as to build secure attachment, (b) developing the care-giving system to support the child's self-regulation systems, and (c) care-givers supporting the child's development of a positive sense of self and ability to master tasks.

Of the 93 children who received the intervention, only 54% were deemed to have received the ARC model by the date of the article's

submission (Arvidson et al., 2011). Of these 50 children, only 26 had completed treatment at discharge due to relocation of the family (26%), drop out, due to family reunion (14%), and loss to follow-up (8%). A further five children were excluded due to either lack of data or legal consent, leaving a sample of 21 children. Despite the low sample size, significant improvements in child behaviour were found between baseline and final measurement on the Child Behaviour Checklist (CBLT) scores, whereas children who had not completed the programme (transferred, dropped out, lost, other) had no significant reductions in symptoms on their last record for the CBLT. A high proportion of the children who participated fully in the programme moved into permanent placements (92%), compared to an average of 40% placements in "usual practice." Authors concluded that the ARC model was a promising practice for young children, but required more formal research be conducted. This paper was rated as weak on all but one field (data collection methods were rated as moderate) in the risk of bias assessment.

The second ARC method paper also employed a naturalistic design to provide an empirical basis for the application of the ARC model (Hodgdon et al., 2013). The study measured treatment outcomes for 126 girls (aged 0–21 years) in residential care, who had experienced at least one traumatic event. This paper aimed to focus on a description of the initial stages of applying the ARC framework in a residential setting, and presented results from the programme evaluation. Significant positive relationships were found between the ARC intervention and lower posttraumatic stress disorder (PTSD) symptomology. Externalising and internalising behaviours were reduced over the course of the intervention, as was the use of restraints. The authors acknowledged that one of the most significant limitations to the study was the study design, which was a naturalistic outcome evaluation, and not an experimental study. A second limitation was intervention fidelity, as the intervention was not fully employed for all clients in the programmes. These factors meant that although outcomes were statistically significant, they were only modest from a clinical perspective. The study was rated weak overall in the risk of bias assessment, with two factors (selection bias and data collection methods) rated as moderate, and all other factors rated as weak.

The sample in the final ARC paper was pre- or postadoptive children who had two or more lifetime traumatic exposures, and their carers (Hodgdon et al., 2016). In this semistructured naturalistic study, children received 16 weeks of individual- and group-based ARC treatment, involving 16 individual sessions with the child, plus six group sessions which included care-giver. Specific guidance on the goals of the sessions, the psychoeducational content, and strategies as defined in the ARC domains, targets, and subskills were provided to children. There was a significant reduction in PTSD scores following the intervention: 76% of children were assessed as having clinical PTSD at baseline, compared to 33% at follow-up. Significant reductions in children's anxiety, depression dissociation, and anger scores were also found, and carers' stress was significantly reduced. Study limitations were listed as lack of control group and low treatment fidelity. Although results could be considered promising, for

TABLE 1 Data extraction and synthesis

Author, year, country	Aim of study and intervention	Number of participants and dropouts	Description of target population	Methodology	Outcomes	Length of follow-up	Funding source
Arvidson et al., 2011 United States	Aim: To provide preliminary evidence of the effectiveness of the ARC model Intervention: Attachment, Self-Regulation, and Competency (ARC) Framework	93 children treated, but only 26 completed the intervention.	Preschool and school-aged children in the child protective system treated through the Alaska Child Trauma Centre	Research design: Naturalistic programme evaluation Data analysis: <i>T</i> tests comparing pre- and postscores on the Child Behaviour Checklist (CBC) (young child version), including box plot. Percentage comparison of placement after programme to children who did not receive programme (transferred, dropped out, lost other) Covariates: None	Mean CBCL <i>t</i> -score at baseline was 62.6 and <i>t</i> -score was 43.6 at discharge. The average drop in CBCL <i>t</i> -scores for children completing treatment was 19 points 92% children moved to permanent placements compared to usual 40% ARC found to be a promising practice for young children	No follow-up post the study period	None stated
Hodgdon et al., 2013 United States	Aim: To provide an empirical basis for the application of the ARC model into clinical and milieu [social environment] programmes Intervention: Attachment, Self-Regulation and Competency (ARC) Framework	126 females from two residential treatment programmes	Participants were a subset of data from residential centres, aged 0–21 years, having experienced at least one traumatic event.	Research design: Naturalistic study design using data from the National Child Traumatic Stress Network dataset Data analysis: Multilevel regression analysis Covariates: Not stated	Significant relationships were found between the intervention (ARC) and lowering of posttraumatic stress disorder (PTSD) symptomatology, externalising and internalising behaviours, and the use of restraints across two programmes	Three follow-up assessments (timeframe unclear.)	Partly funded by the Center for Mental Health Services, U.S. Department of Health and Human Services
Hodgdon et al., 2016 United States	Aim: To describe the application of the ARC model with adopted children impacted by complex trauma and their care-givers Intervention: Attachment, Self-Regulation, and Competency (ARC) Framework	A subset of 481 children and their caretakers.	Pre- or postadoptive children and carers who had two or more lifetime traumatic exposures, with current posttraumatic stress disorder (PTSD) and functional impairment in two domains	Research design: Semistructured naturalistic approach, involving 16 weeks of individual and group-based ARC treatment. No control group; low treatment fidelity; raters were not blinded Data analysis: Correlations between parent and child outcomes; multilevel regression analysis for all other outcome data Covariates: Not stated	Significant lowering of Child Mental Health Symptoms from pre- to posttreatment, with 76% of children assessed as having PTSD (per the Clinically Administered PTSD [CAPS]) compared to 33.3% at follow-up. The effect size for the reduction in PTSD symptoms was large (Cohen's <i>D</i> = 1.88). Significant reductions were found for child anxiety, depression, posttraumatic stress, dissociation, and anger. Significant reduction in care-giver stress	12-month follow-up period	Not stated

(Continues)

TABLE 1 (Continued)

Author, year, country	Aim of study and intervention	Number of participants and dropouts	Description of target population	Methodology	Outcomes	Length of follow-up	Funding source
Izzo et al., 2016 United States	Aim: To evaluate implementation of the CARE model over a 3-year implementation period Intervention: Children and Residential Experiences (CARE)	11 agencies. Incident data per days of care was extracted from administrative sources, with the average number of residents used to estimate per capita rates Of the 16 agencies that initially agreed to participate in the study, one was no longer eligible due to changes in the resident population type, one closed prior to implementation, one discontinued due to changes in priorities by administration, and two were excluded due to lack of sufficient detail in databases on incident type	10 agencies cared for male and female children between the ages of 7 and 18 years One agency only served males All agency care-givers lived in the home units for 1–2-week shifts	Research design: Multiple baseline interrupted time series Data analysis: A model for each of the five types of behavioural incidents was constructed using a mixed effects negative binomial regression model, to estimate the number of incidents per resident per month. Two slopes (time trends) for the 12 months prior to, and the 3 years postimplementation were modelled Organisational social context was determined at the agency level Covariates: Agency, agency's parent organisation, and organisational social context score at initiation of implementation period	Implementation of the CARE programme led to significant declines in the following three types of behavioural incidents: <ul style="list-style-type: none"> • Aggression towards staff • Property destruction • Runaways. Inconclusive results for: <ul style="list-style-type: none"> • Aggression towards peers • Self-harm More positive organisational climate predicted fewer <ul style="list-style-type: none"> • Aggression towards peers • Property destruction Organisations with poorer conditions at the start had the most consistent implementation process	The intervention was in place for 48 months, and no information post this time was presented.	The research was partly supported by a multiyear grant from The Duke Endowment, Charlotte, NC, USA
Bloom et al., 2003 USA	Aim: To describe the implementation of the Sanctuary model in five treatment scenarios Intervention: The Sanctuary Model	TP1: 22 adults a, b, TP2: 150 children. a, b, TP3: 112 children. a, b, TP4: 10 adolescent children TP5: not stated. Dropouts not stated in TPs	TP1: Hospital psychiatric unit TP2: Residential and day programme for children TP3: Residential programmes for children TP4: Small residential facility TP5: Long-term residential programme for women who are substance abusers and victims of violence	Research design: Research design not specified for each TP Data analysis: TP1: Use of seclusion and restraint TP2: (descriptive only) TP3: (descriptive only) TP4: Numbers of therapeutic holds and hospitalisations TP5: (descriptive only) Covariates: None	TP1: Over 2 years, number of seclusions reduced by 87%, and hours spent in seclusion halved. Patient satisfaction surveys improved. Improvements noted in staff interest and pride TP2: Discusses process of change at leadership level. Need for leadership to always role model appropriate behaviour TP3: Sanctuary helped organisation to focus on their moral purpose TP4: Large decreases in numbers of therapeutic holds, and no hospitalisations in second year. Staff demeanour towards children more positive. Difficult to maintain model with high staff turnover TP5: Lowered incidence of violence. Changes in how violent incidences were managed	Not stated	Not stated

(Continues)

TABLE 1 (Continued)

Author, year, country	Aim of study and intervention	Number of participants and dropouts	Description of target population	Methodology	Outcomes	Length of follow-up	Funding source
Kramer, 2016 United States	Aim: To understand the effectiveness of the Sanctuary Model in decreasing trauma symptoms Intervention: The Sanctuary Model	20 staff participated in focus groups. Out of 160 residents, 19 consented to participate in focus groups; only 13 participated as 6 withdrew due to concerns with being audio-recorded	Residential staff, and court-committed male adolescents in a residential treatment programme.	Research design: Qualitative, including observation of groups, content analysis of agency documents, focus groups and interviews with staff Data analysis: Grounded Theory Covariates: N/A	The intervention was found to ameliorate symptoms of complex trauma	Not stated	Not stated
Rivard et al., 2005 United States	Aim: To evaluate the implementation and short-term effects of the Sanctuary Model in residential treatment programmes for youth Intervention: The Sanctuary Model	Youths (N = 158) Staff participated in focus groups (number not stated)	Youths aged 12–20 years, mean of 15 years. 33% Hispanic; 27% black; 13% white; 1% other Staff who worked in the programmes and who had agreed to participate in study's focus groups and surveys	Research design: Comparison Group Design, measured at baseline, 3 and 6 months. Four initial, and four randomly assigned subsequent residential units received the intervention. Eight units provided standard care Data analysis: Qualitative analysis to assess intervention implementation COPEs scale (Community Oriented Programs Environment Scale) used to assess therapeutic environment Youth outcomes assessed using a series of instruments Covariates: None	Intervention units showed significantly stronger outcomes in the treatment environment, such as support, autonomy, safety, and personal problem orientation, than units without the intervention Youth gains were made in the areas of coping skills, and sense of control over environment at the 6-month time point	Results were only measured over a short time period of 6 months, no further follow-up data were presented	Funded by the National Institute of Mental Health

Note. TP, treatment place.

^aTP = Time Point^bOnly T2, T3, and T4 had suitable populations, and were retained for analysis in this review.

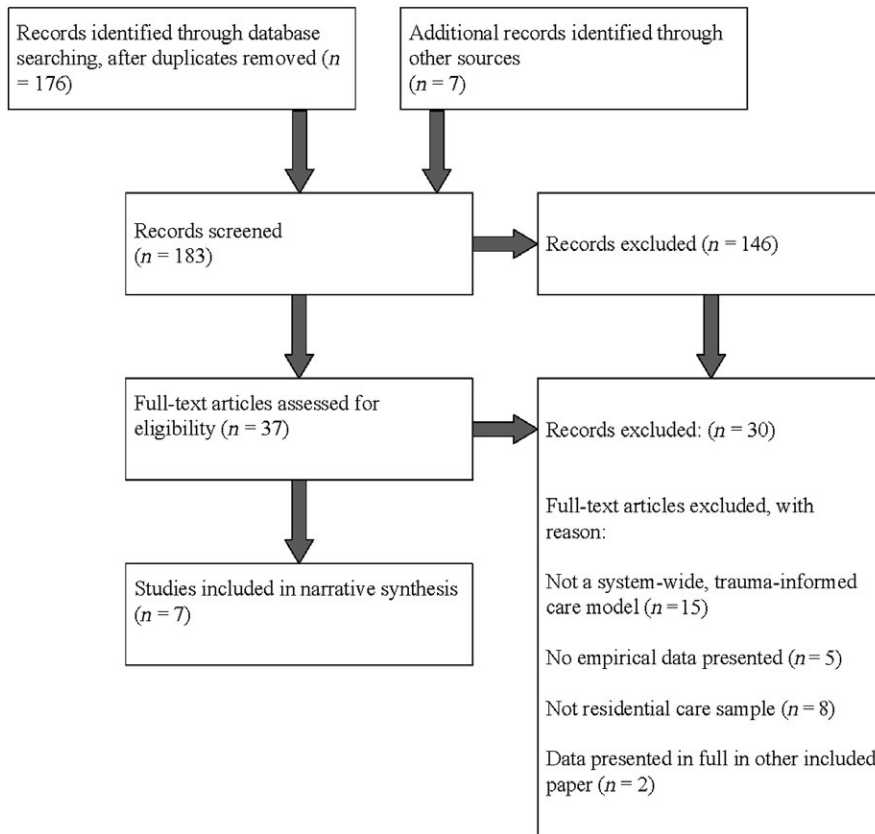


FIGURE 4 PRISMA diagram of the systematic search

instance the effect size for the reduction in PTSD symptoms was large (Cohen's $D = 1.88$), authors stated that a more thorough evaluation was required. This study was rated as weak in the risk of bias assessment, with only the factor of selection bias and data collection methods rated as moderate, and all other factors rated as weak.

3.1.2 | Children and Residential Experiences (CARE) Model

The principal aim of the Children and Residential Experiences (CARE) model was the development of an organisational climate that was therapeutically beneficial; supporting and attending to the needs of each child within the organisation (Holden et al., 2010). This process was termed "creating a therapeutic milieu," and involved personnel from all levels of the organisation incorporating CARE principles into daily practice. Inherent in the attention on the whole-of-organisation approach is the assumption that a positive organisational climate and positive staff interactions will lead to better services, as well as improved child outcomes and well-being (Glisson & Hemmelgarn, 1998). The aims of the model were to direct programming and enhance the dynamics of relationships throughout the organisation. The model was based on systemic practices oriented around six core principles, being (a) relationship based, (b) trauma-informed, (c) developmentally focused, (d) family involved, (e) competence-centred, and (f) ecologically oriented. In general, agencies that used this model served young people living in residential care who had been referred from child welfare agencies (Izzo et al., 2016).

Only one paper in the current review evaluated the CARE model (Izzo et al., 2016). The aim of this study was to evaluate the implementation of the CARE model in a residential care environment over a 3-year period. The authors used a multiple baseline interrupted time series, with five agencies beginning implementation in 2010, and six agencies in 2011. Staff were trained during an initial 5-day programme and ongoing assistance was provided by the CARE consultants, including observation and feedback, further training, encouraging routines for reflective practice, and addressing barriers at the organisational level. Postimplementation outcomes were compared to the 12-month time period prior to implementation. Implementation of the model led to significant reduction in aggression towards staff, property destruction, and runaways. Inconclusive results were found for aggression towards peers and self-harm. The evaluation found that a more positive organisational climate predicted less aggression towards peers and less property destruction. This study was the only paper that passed the risk of bias assessment; it was rated as moderate on all fields.

3.1.3 | The Sanctuary Model

The Sanctuary Model is an organisation-wide model for changing social service delivery to better respond to the complex needs of children who have experienced trauma (Abramovitz & Bloom, 2003). The model is informed by four knowledge areas: the psychobiology of trauma, actively creating nonviolent environments, social learning principles, and understanding complex system change (Bloom et al., 2003). The model aims to implement

an organisation-wide approach that involves creating and maintaining an environment that understands how children deal with trauma. A therapeutic community is provided to children, which aims to mitigate the adverse effects of trauma. Sanctuary is the only organisational framework that has achieved a scientific rating of 3 (Promising Research Practice) by the California Evidence-Based Clearinghouse for Child Welfare (California Evidence-Based Clearinghouse for Child Welfare, 2016).

The theoretical basis of The Sanctuary Model stems from four conceptual frameworks: Trauma Theory, Social Learning Theory, Nonviolence, and Complexity Theory (Abramovitz & Bloom, 2003). Trauma theory is based on several decades of research describing the profound impact of stress on human development. Damage experienced through trauma is thought to be not from the trauma itself, but from the way the individual's mind and body reacts to the experience, combined with how the individual's social group responds. In Social Learning Theory, the active use of the whole environment becomes the grounds for therapeutic change. The incorporation of Nonviolent Practice places attention on safety as an active aspect of organisational life. An understanding of complex adaptive systems, for both individuals as well as organisations, is provided by the Complexity Theory.

The model has been designed across four key pillars (Esaki et al., 2013): (a) that trauma can alter brain functioning and behaviour, and can affect whole systems/organisations, (b) the Safety, Emotion, Loss and Future (S.E.L.F) framework, which presents solutions to the complex problems of trauma and stress individually and organisationally, (c) Sanctuary Tools, which include community meetings, safety plans, red flag meetings, team meetings, psychoeducation, and supervision/training, (d) the Seven Sanctuary Commitments of nonviolence, emotional intelligence, social learning, democracy, open communication, social responsibility, and growth and change.

Three papers were found in the search that evaluated the Sanctuary Model (Bloom et al., 2003; Kramer, 2016; Rivard et al., 2005). In the first of these papers, Bloom et al. (2003) evaluated the use of the Sanctuary Model in five diverse organisational settings. Two of these settings were residential treatment programmes for children, and a third setting was a group home for disturbed adolescents. In two further settings, the samples were adults, and these sections have not been included in the current review. Although information on the study designs, implementation, and analyses for the three relevant studies was limited, general outcomes were included. These outcomes included reduction in the number of seclusions, improved patient satisfaction, improvement in staff interest and pride, the need for leadership to always role model appropriate behaviour, and the need for the organisation to focus on its moral purpose. The quality of methodology for these settings was weak, with only brief descriptions of sample and research methodology included in the paper. The paper was rated as weak overall on the risk of bias assessment.

In 2005, Rivard et al. (2005) published a paper that summarised three previous articles on a preliminary evaluation of the implementation and effectiveness of the Sanctuary model for young people

in residential treatment (Rivard, 2004; Rivard et al., 2003, 2004). The treatment programme was evaluated using qualitative and quantitative methodology (focus groups). Sixteen residential care units were included in the study, with eight of the units receiving the intervention, and eight functioning as controls. Outcomes were measured at baseline, and at 3- and 6-month follow-up (Rivard et al., 2005). Results of the study included that the environment was significantly improved in the treatment units compared to the controls, and that youth had improved coping skills and sense of control over their lives at the 6-month time point (but not at 3 months). In the risk of bias assessment, this paper was rated as weak overall, with subsections of selection bias and study design designated as moderate.

The most recently published study included in the current review used a qualitative design. Data collection included observation of groups, content analysis of agency documents, and focus groups and interviews with youth residents and staff (Kramer, 2016). The organisation was a residential unit caring for court-committed adolescents, and the study aimed to investigate the effectiveness of the Sanctuary Model in decreasing symptoms of trauma. The researcher used grounded theory to evaluate interviews and documents, and results suggested that there was evidence that the intervention ameliorated trauma symptoms in the youth. The risk of bias assessment was rated as weak overall, and for all subcategories. While the outcomes from these three studies on the Sanctuary Model indicate the application of this model was promising, further research is required.

4 | DISCUSSION

This review aimed to investigate current evidence for organisation-wide, trauma-informed care models in OoHC settings. Trauma-informed care models are currently being incorporated throughout many child protection systems and organisations worldwide, and the evidence points to general improvements from the implementation of these models, and the absence of detrimental outcomes. The current review, however, found that the evidence base for trauma-informed care models was low. Only seven papers met the inclusion criteria for the current review, of empirically measuring trauma-informed care systems in OoHC populations. Of these seven studies, only one was rated as being of moderate quality on the risk of bias assessment, with the other six studies classified as weak.

The second important finding in this systematic review was the difficulty in effectively evaluating outcomes from trauma-informed care models, as shown by the absence of strong study designs utilised in the studies in five of the seven papers. The paper that was assessed as having moderate risk of bias (Izzo et al., 2016) employed a multiple baseline interrupted time-series study design, utilising administrative data. This study design enabled comparisons between pre- and postimplementation, as well as measurements across cohorts, by progressively introducing the implementation of the programme (five agencies implemented the model in 2010, and six in 2011). Using this method, a comparison could then be made across

cohorts so that external environmental factors could be taken into account, while also ensuring that the programme could be rolled out across all agencies.

Another example of creative methodology was a study by Murphy et al. (2017), not included in this review, who described their decision-making process for choosing a longitudinal quasi-experimental study design to evaluate a trauma-informed programme (not a system-wide, trauma-informed model). The researchers had initially sought to design a randomised controlled trial (RCT); however, after examination of logistic and contamination concerns, the authors determined that an RCT was neither feasible nor appropriate in this context. Instead, this study used administrative data to compare 3 years of data collected during implementation to 1 year of data collected prior to implementation. Furthermore, the dose of trauma-informed care exposure was compared to child outcomes. The study designs utilised in these two papers (Izzo et al., 2016; Murphy et al., 2017) suggest that the use of administrative data is one way that scientifically valid methodology can be used to evaluate system-wide initiatives, and that more standard evaluation strategies, such as randomised controlled trials, may be neither suitable nor effective in these situations (Dixon et al., 2014).

A further outcome of this systematic review was that despite the slender evidence base evaluating organisation-wide, trauma-informed care models, and the difficulties in evaluating organisation-wide processes, outcomes, overall, provide preliminary support for the efficacy of organisation-wide, trauma-informed care models in OoHC populations. This support concords with the extensive anecdotal evidence for trauma-informed care models (such as, Farragher & Yanosy, 2005; Gurwitch et al., 2016; Hanson & Lang, 2014).

The main limitation of the current review was the poor outcome on the risk of bias assessments, suggesting that caution is required when interpreting the effectiveness of these models. The review was limited because of a lack of rigorous empirical evidence but this does not suggest that trauma-informed models/frameworks are ineffective. What our findings suggest is that there is promise in adopting these models, but that more rigorous and systematic research is required to build the evidence base to inform implementation for sustainable positive and improved child and family outcomes.

A second limitation to this study was the lack of homogeneity between study outcomes, meaning that it was not possible to conduct a meta-analysis to generate estimates of the effect of organisation-wide, trauma-informed care models. These studies have made a large contribution to the literature, and the tensions between the different worlds of research, policy, and practice need to be acknowledged. It is important for researchers to bridge the gap to aid evidence-informed and evidence-based practices, and for policy makers and service providers to commit to rigorous evaluation and continual learning. Future research could focus on evaluating the various components of these models, and comparing these components across model types. It is recommended that

an implementation science methodology is used to guide future research in this area.

Implementation science is an emerging field which aims to bridge the research-to-practice gap, and improve the quality and effectiveness of services provided. Specifically, implementation science can be defined as "the scientific study of methods to promote the uptake of research findings and other evidence based practices into routine practice" (Bauer, Damschroder, Hagedorn, Smith, & Kilbourne, 2015, p 1). Implementation science can be used to make significant organisational changes while attempting to avoid the pitfalls that can be the consequence of managing multiple programmes, requirements, and priorities (Wilson, Brandes, Ball, & Malm, 2012). When instigating new systems, inadequate planning, insufficient staff and patient input, and a lack of alignment with previous services or priorities can mean that it is difficult to prepare staff to effectively implement an initiative. Implementation science is critical in supporting evidence-based practices in public health (Proctor, 2012).

In conclusion, assessing the efficacy of organisation-wide, trauma-informed care models is challenging, and requires creative solutions. The strongest quality criteria have been applied in this study, revealing that the current evidence for trauma-informed care models is limited. Given the amount of resources currently being employed in implementing trauma-informed care models world-wide, more robust evidence is required to show that these types of models are effective and how the models contribute to improved child and organisational outcomes. Despite the limited evidence, the analysis of the papers presented in this review provides promising evidence that the application of trauma-informed care models may have significantly positive outcomes for children in OoHC.

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SUPPORTING INFORMATION

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

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