Trauma informed interventions to reduce seclusion, restraint and restrictive practices amongst staff caring for children and adolescents with challenging behaviours: A Systematic Review

Abstract

Background: Engaging with children and adolescents in mental health settings who are exhibiting behaviours that challenge can often result in the use of seclusion, restraint and coercive practices. It is recognised that more therapeutic ways to engage this population are needed, adopting trauma informed interventions may provide a solution. **Aims:** The aim of this systematic review is to synthesize the evidence in relation to the effect of trauma-informed interventions on coercive practices in child and adolescent residential settings**. Methods:** The review is guided by elements of the Cochrane Handbook for Systematic Reviews of Interventions and reported using the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) checklist. Results were synthesized and reported narratively. **Findings:** Nine studies met the eligibility criteria for this review. There was a lack of homogeneity amongst the studies. The trauma-informed interventions used were typically multi-faceted, underpinned by a variety of approaches and sought to bring about changes to clinical practice. Most studies (n=8) reported significant reductions in the use of restrictive practices following the implementation of a trauma informed approach. **Conclusion:** The use of a trauma-informed approach, underpinned by an organisational change or implementation strategy, have the potential to reduce coercive practices with children and adolescents. However, the included interventions were insufficiently described to draw strong conclusions.

Keywords: Trauma informed care, children, adolescents, coercive practice, interventions, violence and aggression

Introduction

The "United Nations Convention on the Rights of the Child" (UNCRC), ratified by almost all nations of the world, states the fundamental rights of children and especially the right to life, health, and development, bans discrimination, mandates the protection of children's interests (Save the Children, 2022). Children and young people who require physical and mental health care in healthcare settings can at times present with behaviour that can challenge care provision and responses to this occupy a 'contested space'. Traditionally, challenging or aggressive behaviour was managed using practices that included the coercive use of chemical and sometimes physical restraints (National Institute for Health and Care Excellence, 2017). However, coercive practices such as the seclusion, restraint and the use of time out for managing behaviours that challenge in young people have been linked with negative psychological consequences for young mental health service users (De Hert et al., 2011; LeBel et al., 2010).

Utilising coercive practices can traumatise and/or retraumatise a young person who may have experienced adversity in life previously, as many safety procedures designed to reduce unsafe behaviour can trigger a young person who has experienced trauma and can induce dysregulated states (Hodgdon et al., 2013). This in turn can escalate rather than deescalate the behaviour, creating emotional and physical safety risks. Furthermore, evidence suggests that coercive practices can cause service users to feel frightened (Steckley, 2008) and to experience hyper vigilance (Brophy et al., 2016) and distress when peers are restrained (Snyder, 2018). This can inadvertently damage the therapeutic relationship with healthcare staff (SAHMSA, 2014; Steckley, 2008). Coercive practices can also negatively impact staff who care for service users who have experienced trauma. This can result in staff experiencing secondary trauma or burnout (Beattie et al., 2019), consequently reducing staff capacity to provide therapeutic care and resulting in negative health outcomes for the staff member (Bloom, 2013). Coercive practices are also linked with organisational issues such as staff retention (Craig & Sanders, 2018), decreased length of stay, service user and staff injuries, and workers' compensation claims (Forrest et al., 2018).

As a result, services are recognising the need to find ways to engage with children and adolescents in more therapeutic ways. One such approach that underpins frameworks to reduce coercive practices is Trauma Informed Care (TIC). This approach suggests that behind all behaviours that challenge is an unmet need (SAHMSA, 2014) and strongly promotes developing therapeutic engagement approaches that can enhance communication and explore

the young person's needs. Evidence suggests that patient-centred interventions that use a trauma informed approach to enhance de-escalation can result in reduced coercive practices (Griffing, 2021; Matte-Landry & Collin-Vézina, 2022). Utilising a trauma informed approach can also equip staff to deliver better patient care (Elwyn et al., 2015; Griffing, 2021) through focusing on staff's capacity to be therapeutic and seeking to improve job satisfaction (Hidalgo et al., 2016).

TIC is characterised by a strength-based approach (Forrest et al., 2018) to therapeutically engage with children and adolescents to reduce coercive practices, using both staff and service user focused approaches. These include psychoeducational training designed to build staff effectiveness (Griffing, 2021), service-user focused interventions including play-based (Hidalgo et al., 2016), and sport-based interventions (D'Andrea et al., 2013), as well as debriefing and problem-solving approaches (Azeem et al., 2015). The development of a trauma-informed milieu (Brown et al., 2013) that utilises sensory-based alternatives to reduce coercive practices has also been suggested (Denison et al., 2018).

Evidence suggests that TIC-based strategies have positively impacted the mental health of service users including reduced rates of post-traumatic stress disorder (PTSD) symptoms reported reduced externalizing and internalizing behaviours (Hodgdon et al., 2013; Marrow et al., 2012) and increases in service users' feelings of safety (Elwyn et al., 2015). Furthermore, greater improvements in functional impairment, and reduced length of admission (Boel-Studt, 2017) are reported. Some evidence suggests that changes made have been sustained in practice and further developed (Hale & Wendler, 2020; Matte-Landry & Collin-Vézina, 2022). While there is an increasing body of literature on TIC, to the best of the authors' knowledge, no prior review has systematically reported on trauma-informed interventions as they relate to caring for children and adolescents in both mental health and paediatric settings. The purpose of this systematic review was to synthesize evidence in relation to using trauma-informed interventions to reduce coercive practices in child and adolescent residential settings.

Methods

This systematic review is reported using the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) checklist (Page et al., 2021) and is guided by elements of the Cochrane Handbook for Systematic Reviews of Interventions (Higgins et al., 2019).

Inclusion and exclusion criteria

The review eligibility criteria were pre-determined according to the review aims and were formulated using the modified Population, Intervention, Comparison, and Outcome (PICO)

framework (Schardt et al., 2007), to include “S” for Study design and “S” for Setting (i.e., PICOSS). The inclusion criteria were: Population: Any member of staff caring for children and adolescents (≤19 years); Intervention: Any trauma-informed intervention aimed to reduce seclusion, restraint, and coercive practices among staff; Comparison: Studies with/without comparators; Outcomes: Restrictive practices such as seclusion, use of restraints, and coercion used by staff (primary outcome) and/or any staff/patients/service user outcomes focused on non-restrictive practices (secondary outcome); Study design: Any primary research (including qualitative, quantitative descriptive, randomised controlled trials, non-randomised controlled trials, any pre-post designs); Setting: any child and adolescent residential setting. Studies with staff caring for adults (>19 years) and interventions not aimed at reducing seclusion, restraint, and coercive practices were excluded. Editorials, opinion pieces, theses, dissertations, literature reviews, and conference abstracts were also excluded

Search strategy

Electronic databases Academic Search Complete, MEDLINE, CINAHL, APA PsycArticles, APA PsycInfo, SocINDEX, and ERIC were searched in November 2021. The following keywords were truncated “*” to maximise retrieval, searched based on title and abstract, and combined used Boolean operators “OR” and “AND” as follows: (Child* OR adolescen* OR teen* OR kid OR kids OR paediatric* OR pediatric* OR "young person*" OR "young people*" OR youth*) AND (Seclu* OR restrain* OR coerc* OR isolat* OR de-escalat* OR deescalat* OR de-stimulat* OR destimulat* OR diffus* OR calm* OR "non aversive" OR non-aversive OR "non confront*" OR non-confront* OR constrain* OR lock* OR padded OR time-out OR "time out" OR timeout) AND (Trauma-inform* OR "trauma inform*" OR trauma-focus* OR "trauma focus*" OR trauma-based OR "trauma based" OR trauma-sensitive OR "trauma sensitive" OR trauma-aware* or "trauma aware*" OR safeguard*). The search was limited to studies published in English. No other limiters were used in order to maximise retrieval.

Data extraction and synthesis

Records were screened in Covidence, an online software used to produce and manage systematic reviews (The Cochrane Collaboration, 2022). First, titles and abstracts were screened, and irrelevant papers were excluded. The full texts of potentially eligible papers were then obtained and screened. Each paper had to be screened twice by two independent reviewers **[X]** and **[X]**. A third independent reviewer **[X]** resolved screening conflicts. Data from the included studies were extracted using a standardised data extraction table (Kelly et al., 2017; Saab et al., 2021), under the following headings: Author; country; aim; design; theoretical

underpinning; sample; setting; instruments; intervention; implementation strategy; relevant outcomes measured; results; and further comments/other key findings. Due to the heterogeneity in study design, outcomes, and instruments, a meta-analysis was not possible. Therefore, results from the included studies were synthesised narratively (Lisy & Porritt, 2016).

Quality Appraisal

The methodological quality of the included studies was appraised using the Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018). The MMAT assists in assessing the quality of five study categories: qualitative studies, randomised controlled trials (RCTs), non-randomised studies, quantitative descriptive studies, and mixed methods studies. In the current review the quality of three study categories were assessed, quantitative non-randomised (seven quality appraisal items), quantitative descriptive (twelve quality appraisal items), mixed methods (seventeen quality appraisal items) and qualitative studies (seven quality appraisal items). Each study was appraised by one researcher **[Y]** and cross checked by three researchers **[Y,Y,Y].** Each appraisal item was voted on a "Yes", "No", and "Can't tell" basis. Conflicts in quality appraisal were discussed until consensus was reached.

Results

Study Selection

A total of 390 records were identified through database searching. Following deletion of duplicates, 362 records were screened based on title and abstract and 343 irrelevant records were excluded. The full text of the remaining 19 records was screened. Of those, nine were included in the current review. The PRISMA flow chart is available in Figure 1.

INSERT FIGURE 1 ABOUT HERE

Quality Appraisal

All nine articles had clear aims, adequately addressed with the data collected. All studies (n = 9) reported that participants were representative of the target population and appeared to administer the intervention as intended. Measurements were appropriate in relation to all studies bar one (Denison et al., 2018), which was undefinable. Only one study (Boel-Studt (2017) seemed to account for confounding variables in design or analysis whilst most studies (n = 6) provided complete outcome data. Both mixed methods and qualitative studies (Caldwell et al., 2014; Hidalgo et al., 2016) provided integrated components to answer the research questions and interpret findings. The full quality appraisal results are presented in Table 1.

INSERT TABLE 1 ABOUT HERE

Study Characteristics

A comprehensive overview of the included studies is provided in Table 2. The included studies reported using a range of methodological approaches, including: reports or case studies on trauma informed service initiatives (n=5), quasi-experimental studies (n=2), a retrospective study (n=1) and a mixed methods study (n=1). All studies were conducted in the United States of America and were underpinned by a range of trauma informed approaches. A range of settings were described in the included papers; the majority of studies incorporated either low or high security in-patient psychiatric treatment services, but two papers reported on studies conducted in correctional facilities (Marrow et al., 2012) and secure centres for child immigrants (Hidalgo et al., 2016). All the included studies were conducted in more than one service unit or ward. Only five of the included studies provided a sample size which ranged between 62 (Denison et al., 2018) and 458 (Azeem et al., 2017) participants. Seven of the included studies focused on an outcome of reduced use of restrictive practices for addressing challenging behaviour. One paper, aquasi-experimental study by Denison et al. (2018), focused on the impact of a training programme on staff attitudes towards seclusion and restraint.

INSERT TABLE 2 ABOUT HERE

Synthesis of results

The trauma-informed interventions used in the included studies were typically multi-faceted in that they sought to bring about changes to *clinical* practice, for example, through staff training and modification of staff behaviours, but also through changing *organisational practice* by focusing on aspects such as; leadership, use of data to inform practice, de-briefing, consumer involvement, communication, staff learning approaches and staff wellbeing. In this context, differences were evident between trauma informed approaches utilised in that approaches such as The Six Core Stategies© (Huckshorn et al., 2005) or Trauma Systems Therapy (Saxe et al., 2007) incorporate an 'in-built' organisational change component, which were designed to support the implementation of a clinical component, while other training strategies utilised did not. Irrespective of this, eight papers reported on the use of some form of implementation strategy, such as Hale and Wendler (2020) use of The Iowa Model for Evidence Based Practice (Buckwalter, 2017). These 'whole systems' approaches were utilised in each study to varying degrees but identifying a causal relationship between the separate components of these approaches was not an objective of the included studies. Only one study reported on any

attempt to measure the fidelity to an intervention (Boel-Studt, 2017) and closely replicating any of the approaches used in the included papers would be challenging due to a generalised approach to describing the interventions and due to the variety of contexts in which these interventions were used. As well as methodological differences, there was also variance in how the outcomes were measured and reported in terms of timelines and/or in type of restraints. Timelines for examining reductions in seclusion and restraint where reported, either retrospectively or prospectively, ranged from six months (Azeem et al., 2017) to ten years (Azeem et al., 2015). Where applicable, results were either reported as a percentage, or numerical reduction in restrictive practices. In all papers except two, it was reported that there were reductions in the use of restrictive practices following the implementation of a trauma informed approach.

Table 3 provides a summary of the intervention type and outcomes in each of the included studies. Detail on specific training content for each intervention was not provided in any of the studies but was described as being underpinned by a range of different approaches. Four of the included studies (Azeem et al., 2017; Azeem et al., 2015; Caldwell et al., 2014; Hale & Wendler, 2020) utilised The Six Core Strategies© (Huckshorn et al., 2005) approach. In all of these studies, significant reductions in the use of seclusion and physical or mechanical restraint were reported. This included a 100% reduction for the use of mechanical restraint (Azeem et al., 2015) and reductions for physical restraint or seclusion ranging from 41% (Hale & Wendler, 2020) to 88% (Azeem et al., 2015) over various time periods. Two studies reported using trauma-informed training content as a component of their intervention (Denison et al., 2018; Marrow et al., 2012). Denison et al. (2018) reported significant improvements in staff attitudes to seclusion and restraint following training ($p=0.047$), while Marrow et al. (2012) recorded a five-fold decrease in the use of restraint in a service-wide intervention group versus a control group. The approach utilised by Marrow and colleagues (2012) was aimed at enhancing environmental, staff and service-user strategies to reduce the use of restraint.

INSERT TABLE 3 ABOUT HERE

Two studies reported the on the use of Trauma Systems Therapy (Brown et al., 2013; Hidalgo et al., 2016) one of which, had a play-based focus (Hidalgo et al., 2016). Both of these studies reported reductions in restraint and seclusion over periods ranging from 7 months (Brown et al., 2013) to 12 months ($p=0.359$) (Hidalgo et al., 2016). Finally, one quasi-experimental study

which implemented two ‘system-wide’ interventions trauma-based CBT and what was described as ‘traditional treatment’ (Boel-Studt, 2017) found that the trauma informed group had higher incidents of restraint ($p<0.01$) but lower incidents of seclusion ($p<0.001$) when compared to the control group. The rationale for the increases of restraint in the trauma informed group could not be fully explained by the authors, and it was suggested that this could be attributed to sample characteristics. In this study, other outcomes, such as levels of functioning, were significantly improved in the trauma informed group.

Despite the heterogeneity of the included studies and the inability to complete a meta-analysis due to the lack of a common effect size estimate, in 8 out of the 9 included studies, the percentage reduction in observed aggressive/violent events is illustrated in Figure 2. For this, data on numbers of all reported aggressive/violent events regardless of their type were assessed. Where studies used a repeated measure design (Azeem et al., 2017; Azeem et al., 2015; Brown et al., 2013; Caldwell et al., 2014; Hale & Wendler, 2020; Hidalgo et al., 2016) the number of events at the beginning (before intervention) and end of the reporting period (after intervention) was used to calculate the percentage reduction. For studies with an between groups design (Boel-Studt, 2017; Marrow et al., 2012) percent reduction was calculated based on the number of events in the experimental versus control group.

The mean reduction in reported aggressive/violent events across all studies is 60,72%. The highest reduction is observed in the publication of Azeem et al. (2015), in which combined mechanical and physical restrain events were reduced by 89,2% after 10-year post-intervention period. Similarly, after transformation of beta coefficient of Zero-Inflated Poisson regression predicting restraint and seclusion Incidents by Boel-Studt (2017) 89% event reduction is observed, associated with the intervention compared to the control group. The lowest estimated value observed is based on the data of Hale and Wendler (2020) who reported a percentage reduction of combined seclusion and restraint of 41%, 6 months after an intervention.

INSERT FIGURE 2 ABOUT HERE.

Discussion

The aim of this systematic review was to synthesize the available evidence on the use of trauma-informed interventions in reducing coercive practices in child and adolescent residential settings. This review provides an overview and synthesis of the literature which was not previously available. Owing to the study designs, which were largely case study-based or

quasi-experimental, it is not clear which aspect of the interventions or the implementation strategies, such as increased data reporting to staff, had the greatest impact on the reported outcomes. Furthermore, owing to a lack of randomization, it is difficult to draw definitive conclusions about causal associations between interventions/approaches and outcomes (Schweizer et al., 2016). This methodological weakness is in stark contrast with the extant evidence related to trauma-informed interventions in adult populations, a number of studies have adopted a randomized controlled design (Han et al., 2021). A much more robust evidence base is warranted to support the use of trauma-informed interventions with child and adolescent populations.

Only one study (Boel-Studt, 2017) measured fidelity to intervention strategy, while no study provided sufficient information on the educational content, making replication of the initiative/intervention challenging. Intervention fidelity – where consistent delivery ensures that the same information is provided to all participants (Bonar et al., 2020) – is central to ongoing quality improvement. If fidelity to intervention is not measured, it is not possible to accurately assess the quality of a study or quality improvement initiative (Connelly, 2019). Future trauma-informed initiatives/interventions need to consider the standardization of content and delivery prior to implementation, in addition to transparent reporting of processes.

In this study we found that TIC based interventions mostly focused on changing the *clinical* or *organizational* practices, such as, staff behaviour or leadership. One way to bolster the impact of trauma-informed approaches may be to adopt a whole-systems strategy, evident in all included papers in the current review. However, it should be noted that there were inconsistencies in how studies employed whole systems strategies, and it is not possible to assess the complex relationship between organisational culture and the introduction of trauma-informed approaches. Chelagat et al. (2019) reported that there is often limited return on investment in training as a consequence of low application of knowledge gained. To effect real and sustained positive change, rather than (and prior to) the introduction of training programmes, organisational deficits need to be addressed, and the allocation of requisite resources warrants careful deliberation (Azeem et al., 2017; Kelly et al., 2017). Future studies focussed on children or adolescents need to be more strategic when embedding trauma-informed approaches within the wider organisational structure with the aim of fostering a whole-systems level commitment. Moreover, rigorous methodological approaches should be adopted to measure the multifaceted uptake of these approaches to evaluate where and how

trauma-informed approaches can have the greatest impact. Bryson et al. (2017) discus several implementation challenges and developed a program theory of trauma informed practice implementation that includes the aspects of leadership, staff support, inclusion of patients and families, outcome orientation and alignment of policy and practice.

This review has identified the potential benefit of utilising a trauma informed approach when caring for children and adolescents who exhibit challenging behaviour during inpatient care provision. Evidence suggests that children and adolescents who exhibit behaviours that challenge have experienced a high incidence of childhood and intergenerational trauma (Ivanov et al., 2011). Coercive approaches have been described as 'retraumatising' for young people with a history of adversity (SAHMSA, 2014) and can seriously challenge the therapeutic process health outcomes and future help seeking behaviour (Bloom, 2013). The multifaceted nature of implementing trauma informed care has challenged the capacity of research studies in this review to conclusively identify that using this approach reduced coercive practices in this cohort, with further study indicated. However, children and adolescents who require inpatient care are likely experiencing significant health challenges that require them to be cared for away from their families and carers, thus represent a vulnerable group. It is therefore imperative that robust methodological approaches are developed and utilised to identify ways that children and adolescents can be cared for in ways that not only ensures their physical, but also their emotional safety, while in receipt of care. Mental Health care in child and adolescent inpatient units should always strive to be as respectful and empowering as possible, maintaining a safe and trustful environment, while respecting the child's integrity. This implies keeping interventions that have the power to leave patients feeling shameful, angry, or victimized to a minimum (Perers et al., 2021).

Limitations

This review is not without limitations. A 'hierarchy of effectiveness' for trauma informed approaches or training cannot be determined due to heterogeneity of study designs, lack of information relating to sampling and settings, and variance in the interventions used and reporting of results. Arguably, measurement of the effectiveness of more widely utilised Trauma informed strategies, such as The Six Core Strategies © (Huckshorn et al., 2005) is also methodologically challenging due to the wide range of variables, all of which will have influenced results across various organisational settings (Lewis et al., 2019). Moreover, excluding studies conducted among youths over the age of 19 years and not searching the grey

literature and trial registries could have led to study selection bias. The small number of studies included in this review *also* limits the generalisability of the results to other practice settings.

Conclusion

Results from the included studies suggest that the use of a trauma-informed approach underpinned by an organisational change or implementation strategy have the potential to positively impact on reducing coercive practices from staff, who work with young people that present with behaviours that challenge. Information innervations are likely to be associated with reduction of restriction practices. Further robust research, using implementation science, that has strong theoretical underpinnings is needed to further determine the impact of trauma informed interventions on the use of seclusion, restraint and coercive practice with children and adolescents. Utilisation of a humanistic approach such as TIC to address challenging behaviour, can potentially transform some of the most difficult aspects of care provision and subsequently positively impact young service users experience of care and improve staffs experience of care provision.

Conflict of Interest Statement

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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