



Relationship building strategies within trauma informed frameworks in educational settings: a systematic literature review

Michelle Wilson-Ching¹ · Emily Berger¹

Accepted: 20 March 2023 / Published online: 30 March 2023
© The Author(s) 2023

Abstract

Connection with others and a sense of belonging is essential for student school engagement and success. Relationship building practices are therefore central within trauma-informed frameworks that aim to support students with a history of interpersonal trauma. The purpose of this systematic review was to evaluate the research literature regarding relationship building strategies that have been implemented within educational systems as part of their trauma-informed practices. The relationship building strategies, outcomes, and phenomenological experiences of teachers and students were evaluated. Four electronic databases were systematically searched and studies within the education system, from preschool to high school, which included connectedness to school through relationship building as part of a trauma-informed practice protocol, were included in the searches. Thirteen studies were identified where educational settings implemented relationship building strategies within well-established, eclectic, or relationship-specific trauma-informed models. Results suggest great variability of implementation and strategies related to relationship building across school settings, even within studies implementing the same trauma-informed framework. Across studies, positive outcomes reported included improved relationships with teachers, better relationships with other students, greater use of relationship building practices, an increased willingness of teachers to develop better relationships with their trauma-affected students, and improved relationships with families. The study concludes that relationship building strategies within the school system need to be considered and implemented within a systems framework where teacher-child and teacher-family relationships are supported and encouraged. Further, these strategies are more likely to be sustainable when teachers receive ongoing support.

Keywords Interpersonal trauma · Complex trauma · Trauma-informed practice · Relationship building · Belonging · School outcomes

Introduction

A child's ability to learn is dependent on multiple factors including the optimal development of their cognitive, physical, emotional and psychosocial skills, which influences academic outcomes and behaviours at school. Interpersonal trauma disrupts multiple developmental areas which are important for learning, such as attentional and memory capacities, as well as emotional regulation (Carrion & Wong, 2012; Panlilio et al., 2019). Indeed, research suggests greater rates of absenteeism and expulsion, lower academic

performance, and greater problem behaviours within the classroom in this population compared to students with no history of trauma (Frieze, 2015; Maynard et al., 2019; Perfect et al., 2016).

Interpersonal trauma is often experienced within the home environment (Dugal et al., 2016; Folger et al., 2017; Spinazzola et al., 2018), which impacts early attachments to significant others, and disrupts socioemotional development in these children (Ainsworth, 1978; Sroufe, 2005). Examples of interpersonal trauma include experiences of domestic physical or psychological violence, neglect, or the adverse effects of poor mental health by caregivers (van der Kolk, 2005). Interpersonal trauma experienced in childhood is commonly prolonged, resulting in a toxic brain response where the child is in constant state of heightened awareness (Carrion & Wong, 2012). These results in the common behaviours seen in trauma-affected children, such as

✉ Emily Berger
emily.berger@monash.edu

¹ School of Educational Psychology and Counselling, Faculty of Education, Monash University, 19 Ancora Imparo Way, Clayton, Victoria 3800, Australia

poor emotional regulation, difficulties reading and responding appropriately to social cues, (McLaughlin & Lambert, 2017), and a sense of distrust of others (Hepp et al., 2021). Within the school environment, these behaviours are not conducive to learning, and affect not only the child but their classmates and teachers (Caringi et al., 2015).

Indeed, teachers who support trauma-affected children may experience vicarious trauma and burnout (Spencer, 2019; Thomas et al., 2019). Therefore, their ability to teach and provide the support these children need is affected, and teachers often report feeling ill-equipped to deal with trauma-affected students (Alisic, 2012; Berger et al., 2021; Davies & Berger, 2019). Furthermore, since learning is a social endeavour where teacher-student relationships are key (Fraser & Price, 2011), students impacted by trauma experience significant setbacks at school.

Many schools have adopted trauma-informed models in order to support students with a history of trauma. An important premise of trauma-informed practice is to provide a safe environment by implementing policies and procedures that are protective and help recognise and respond to trauma in students (Berger, 2019). Indeed, for the student population at large, the provision of the right educational environment, where a sense of safety, connectedness and belonging is fostered, is foundational for learning (Allen & Bowles, 2012). Further, relationships within school settings can function as agents of healing for trauma-exposed students (Brunzell et al., 2015; Crosby, 2015). Students exposed to trauma describe school settings as places of respite and safety away from the trauma of home life (Townsend et al., 2020).

The importance of school for children exposed to trauma can be understood within an ecological systems perspective. A child's development is the result of interactions between different systems. The microsystem (e.g., immediate connection between child with family and child with teachers), the mesosystem (e.g., interactions between different microsystems), the exosystem (e.g., indirect influences, such as discipline policies within the school, skills and attitudes of teachers), the macrosystem (e.g., school culture and education system legislation), and the chronosystem (e.g., changes across the previously mentioned systems across a child's life). The microsystem is where personal connections and the opportunity of developing relationships emerges. From an ecological systems perspective (Bronfenbrenner, 1979, 1986, 1996; Harvey, 1996), the school setting is in a prime position to facilitate the development of healthy attachments and help mitigate the effects of trauma (Brown et al., 2019). Further, it is a place where the trauma-affected student can develop important socio-emotional skills such as those related to self-regulation. However, as noted by Crosby (2015), the trauma-informed strategies that can occur within the microsystem are multiple. Influencing practices within the school setting could include the students' relationship

with peers, the teacher's awareness of and connection with the students' needs, or intervention programs provided by mental health workers to facilitate the student's school or relational engagement (Crosby, 2015).

Encouraging healthy relationships has been recognised as essential in establishing a healthy learning environment and trauma-sensitive classrooms (Stokes & Brunzell, 2019). To date, no review has evaluated the different strategies or the outcomes and the benefits of implementing relationship building strategies within school settings to support students who have been affected by trauma. The aim of this systematic review was to evaluate the relationship building research within the trauma-informed practices in school settings. Specifically, this systematic review sought to outline the relationship strategies and frameworks that have been implemented within educational systems as part of trauma-informed practices. Secondly, it sought to evaluate the outcomes of these strategies as well as the phenomenological experiences of students and school staff in employing them. An understanding of how relationship building can be incorporated within a trauma-informed program in the educational setting is valuable in guiding future research, as well as guiding school practice and influencing policy.

Method

The Preferred Reporting Items of Systematic Review and Meta-Analyses (PRISMA) (Moher et al., 2010; Page et al., 2021) guidelines was employed to inform the methodology of this review. The PRISMA guidelines contain reporting recommendations for authors conducting systematic reviews in order to ensure transparency in the way reviews are executed and reported. The guidelines include information that should be included in all areas of the report such as eligibility criteria and the screening process (For detailed guidelines see PRISMA statement, 2021). Four electronic databases (i.e., Psycinfo, A + Education, ERIC, and Proquest Education Journals) were systematically searched between July 2021 and August 2021.

Eligibility criteria and literature search

Qualitative and quantitative approaches of published and unpublished literature (i.e., dissertations) in English were included in the search criteria and no exclusions were placed on year of publication given the limited studies anticipated in this area. Studies within the education system, from preschool to high school, which included connectedness to school through relationship building as part of a trauma-informed practice protocol, were included in the searches. Specialist schools were excluded from the search criteria to focus on relationship building strategies that have been

employed in mainstream schools. Specialist schools were regarded as schools that cater for students with disabilities and additional learning, social, emotional and behavioural needs. Searches included terms in the area of childhood trauma (e.g., Adverse Childhood Experiences [ACEs], developmental trauma), trauma-informed practice (e.g., educational interventions), attachment (e.g., relationships, belonging, connectedness), and educational system (e.g., school, primary/secondary school, preschool). See Table 1 for a structure of the search terms, which were combined by using AND as the Boolean operator to add searches 1 to 4.

Study quality

The quality of quantitative studies was established with the Australian National Health and Medical Research Council (NHMRC; NHMRC, 2009) standards. The NHMRC standards have been developed for clinical research but provided guidelines to evaluate levels of evidence for quantitative research (i.e., levels I, II, III-1, III-2, III-3, IV; systematic review of randomised studies, randomised controlled trial, pseudorandomised controlled trial, comparative study with concurrent controls, comparative study without concurrent controls, or case series, respectively). Qualitative studies were evaluated for quality with the Critical Appraisal Skills Programme (CASP; CASP, 2018) checklist. Nine questions from the CASP checklist were considered to evaluate the studies. Questions covered three areas: the study's validity, the analyses and reporting of results, and the applicability of the findings. CASP scores ranged between 0 (i.e., no criteria met) to 9 (i.e., all criteria met). Details of NHMRC standards and CASP criteria is presented in Table 2 and discussed in the "Results" section.

Procedure

Figure 1 outlines the systematic process employed during reviewing. After duplicates were excluded ($k = 114$), each remaining record ($k = 973$) was screened by title and abstract. This resulted in 38 records which were retained for full-text review, taking into account the exclusion and inclusion criteria. The reference lists of articles retained at

this stage were also searched for relevant articles. A total of six additional articles were identified through this process. Thus, 44 articles in total were subject to full-text screening and through this process 31 articles were excluded. Remaining records ($k = 13$) were coded using PICOS categories as a guideline (i.e., population, intervention, comparison or control, outcome) (Huang et al., 2006). The following variables were also extracted: educational setting, location of study, study's participants, study design and measures, relevant trauma risk in the educational setting, trauma-informed framework, training and program support, relationship building strategies, and outcomes pertinent to relationship building strategies.

Results

Context of studies (geographical and educational), participant characteristics, and quality of studies

After inclusion and exclusion criteria were applied, thirteen studies were identified that included one or various components of relationship building in a trauma-informed practice model within educational settings (see Tables 2 and 3). Eight studies were from peer-reviewed journals (Brunzell et al., 2019; Dorado et al., 2016; Holmes et al., 2015; Post et al., 2020; Rishel et al., 2019; Saint Gilles & Carlson, 2020; Stokes & Brunzell, 2019; Wall, 2020), three were grey literature (Fleming, 2019; Padak, 2019; VanderWegen, 2013), and two were scholarly non-peer-reviewed articles (Stokes & Turnbull, 2016; Stokes et al., 2019). Nine of these studies were conducted in the USA (Dorado et al., 2016; Fleming, 2019; Holmes et al., 2015; Post et al., 2020; Padak, 2019; Rishel et al., 2019; Saint Gilles & Carlson, 2020; VanderWegen, 2013; Wall, 2020), and four in Australia (Brunzell et al., 2019; Stokes & Brunzell, 2019; Stokes & Turnbull, 2016; Stokes et al., 2019). Data for these studies was collected across the education system; namely preschool (Holmes et al., 2015; Post et al., 2020; Saint Gilles & Carlson, 2020), or primary (Padak, 2019; Stokes & Brunzell, 2019; VanderWegen, 2013; Wall, 2020). Some studies included both preschool and primary (Fleming, 2019; Rishel et al., 2019), or primary and

Table 1 Search terms for the literature review

Search 1	trauma or "complex trauma" or "developmental trauma" or "violence" or "post-traumatic stress" or PTSD or ACEs or "posttraumatic stress disorder" or "adverse childhood experiences"
Search 2	"trauma informed" or "positive behaviour support" or PBS or "response intervention" or strategy or program or "school-based intervention" or "social intervention" or "wise intervention" or "social-psychological intervention" or "educational intervention"
Search 3	Attachment or bonding or "school belonging" or relationships or "social connectedness to school" or "sense of belonging" or "school belonging" or "identification with school" or belonging or engagement or bond or bonding or affiliation or connection or membership or "relational engagement"
Search 4	(school or preschool or kindergarten or primary or secondary or reception or education)

Table 2 Relationship building strategies within trauma-informed educational settings: study characteristics

Publication year	Setting and location	Participants	Study design/Measures	Trauma risk	NHMRC levels of evidence (Quantitative or Mixed design studies)	CASP Checklist (No. criteria met: 0–9)
Established trauma-informed frameworks (ARC)						
Dorado et al. (2016)	Kindergarten through to 8th grade. San Francisco, USA	1243 students across 4 schools. 175 teachers, administrators, and school welfare staff 88 students received specific therapy	Mixed Methods. Retrospective pre- and post-evaluation design. Participants completed evaluation surveys, pre- and post-discipline referrals, and suspensions. Child and Adolescents Needs and Strengths (CANS) scale completed at intake, various intervals, and at the end of intervention.	Schools selected were under-resourced and trauma-impacted communities. Schools with low academic achievement rates.	III-3	---
Rishel et al. (2019)	Elementary School (preschool, kindergarten, grade 1); West Virginia, USA	Teachers and Students from 51 classrooms (39 participating and 12 comparison) matched by school	Quantitative; Classroom Assessment Scoring System (CLASS) evaluated in a Between-subjects (baseline and follow-up) and Within-subjects design (trauma informed classroom versus no-trauma informed classroom).	School located in rural community with opioid epidemic	III-2	---

Table 2 (continued)

Publication year	Setting and location	Participants	Study design/Measures	Trauma risk	NHMRC levels of evidence (Quantitative or Mixed design studies)	CASP Checklist (No. criteria met: 0–9)
Saint Gilles and Carlson (2020)	Preschool students (ages 3 and 4), USA	5 teachers (3 intervention, 2 comparison); 106 students' caregivers (53 intervention, 53 comparison)	Quantitative quasi-experimental design. Measures: Classroom Fidelity Checklist; Trauma-Informed Agency Assessment-Amended, TIAA; CLASS; Secondary Trauma Self-Efficacy Scale, STSES; Devereux Early Childhood Assessment Preschool Program, Second Edition, DECA-P2; Behaviour Assessment System for Children, Second Edition, BASC-2; Childhood Trust Events Survey, CTES	Children from low-income backgrounds where close than half had experienced trauma.	III-2	---
VanderWegen (2013)	Primary school, USA	8 classroom teachers, 2 specialist teachers, school principal, school complex trauma facilitator	Qualitative case-study design. Data collected through semi-structured interview, observations, field notes and school documents (communication with staff, discipline information).	Students from low socio-economic groups (57% qualified for free/reduced lunches, 14% qualified for special services, 3% were homeless).	---	7

Established Trauma-Informed Frameworks (BSEM/TIPE)

Table 2 (continued)

Publication year	Setting and location	Participants	Study design/Measures	Trauma risk	NHMRC levels of evidence (Quantitative or Mixed design studies)	CASP Checklist (No. criteria met: 0–9)
Brunzell et al. (2019)	2 Government schools: Primary School (Foundation to Year 6) Secondary School Foundation to Year 12) in Victoria, Australia	18 teachers (9 primary school and 9 secondary school)	Qualitative case-study design. Data collected through group interviews.	Participating schools were in communities in the lowest quartile of the states' socioeconomic measures.	---	7
Stokes and Brunzell (2019)	1 Rural Primary school (grade 5 and grade 6) in Victoria, Australia	Unspecified number of grade 5 and 6 students, teachers, and principal.	Mixed methods; Quantitative data (pre- and post-implementation data on a survey on school attitudes, a teacher judgement on reading, writing, and numeracy, suspension data) and qualitative data collected through interviews pre and post-implementation of trauma informed program.	School located in low socioeconomic rural area with high levels of unemployment. Child protection intervention orders issued in 50% of the school population. High proportion of students were 12 to 18 months behind academically.	IV	---
Stokes and Turnbull (2016)	2 Schools (Primary and Primary to Secondary), Victoria, Australia	52 students (grades 5 to 8) 28 primary and secondary school teachers and school leaders	Mixed methods; Quantitative (pre and post intervention School Attitude to School Survey-SASS; academic and school suspension data). Qualitative (pre- and post-intervention focus groups with staff and students).	Schools selected where students had high levels of disadvantage, disengagement with school, behavioural issues, and a high incidence of Child protection notifications.	IV	---

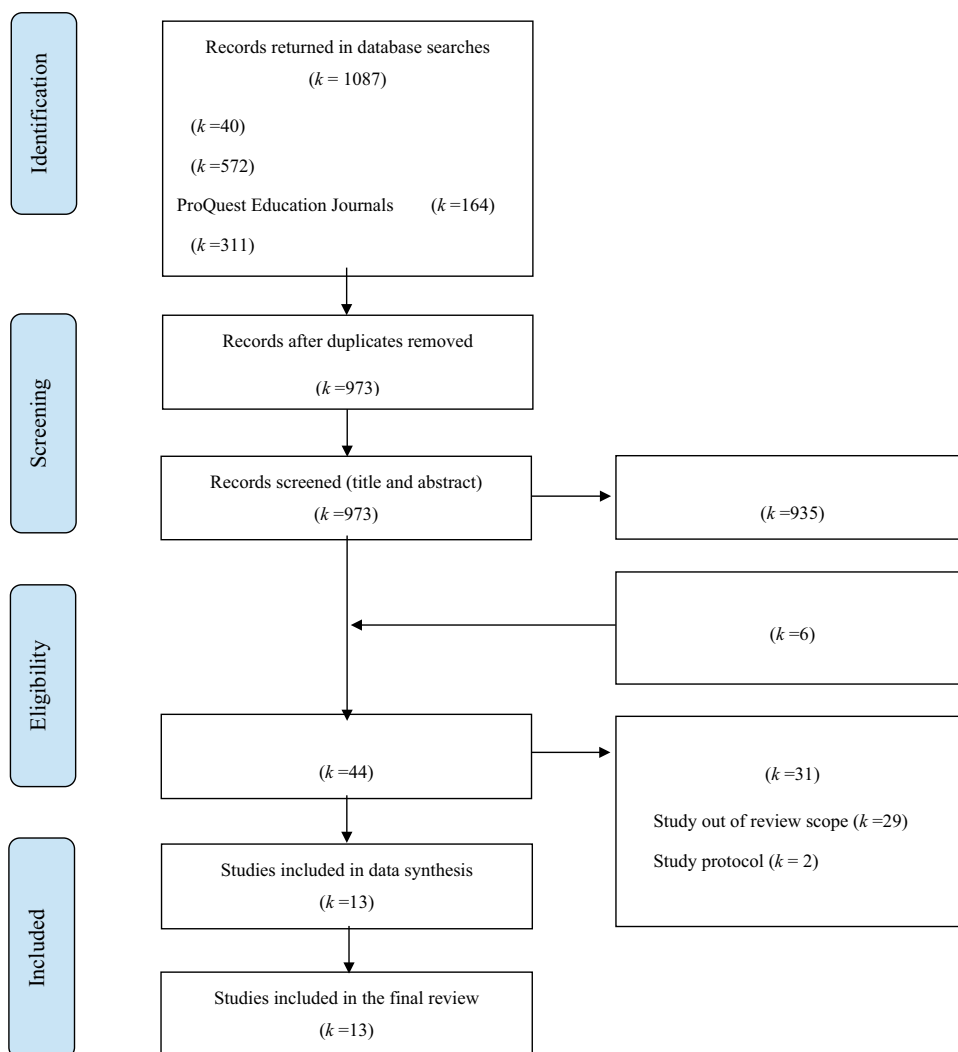
Table 2 (continued)

Publication year	Setting and location	Participants	Study design/Measures	Trauma risk	NHMRC levels of evidence (Quantitative or Mixed design studies)	CASP Checklist (No. criteria met: 0–9)
Stokes et al. (2019)	4 schools (2 primary, 1 P-9, and one secondary); Victoria, Australia	59 students 5 leadership staff	Case-study; qualitative data collected through students focus groups and interviews with leadership staff. Data collected pre- and post-implementation over a 12-month period.	3 schools were in communities with low socioeconomic status; 2 schools had high percentages of students with English as a second language; 2 schools had lower than average Index of Community Socio-Educational Advantage (ICSEA) values	---	7
Eclectic trauma informed models employing relationship building						
Holmes et al. (2015)	3 Head Start preschool settings, Midwest, USA	81 pre-schoolers involved in the Head Start preschool and their caregivers, 60 classrooms	Quantitative data was collected with 3 measures: the Childhood Trust Events Survey for Caregivers, CTES; Achenbach, and CLASS. Data was collected at intake (CTES) and pre- and post-intervention.	Children from low-income communities	IV	---
Fleming (2019)	Elementary (kindergarten to grade 5) and Middle school (grades 6 to 8), North Carolina, USA	Leadership staff, student support staff, and teachers	Qualitative Case-Study. Data collected pre-post-implementation through interviews, focus groups, observations (5 months), photovoice, surveys	Disadvantage school community; ~99% qualify for free or reduce lunch	IV	---

Table 2 (continued)

Publication year	Setting and location	Participants	Study design/Measures	Trauma risk	NHMRC levels of evidence (Quantitative or Mixed design studies)	CASP Checklist (No. criteria met: 0–9)
Padak (2019)	Elementary school (grade 1 to grade 5), USA	31 students and 25 certified staff	Mixed method; Quantitative data included student survey's and attendance records pre- and post-implementation. Qualitative data included teacher interviews, teachers' reflective notes	Students had experienced a variety of interpersonal trauma (high number more than one event).	III-2	---
Wall (2020)	Elementary school (grade 2 to 5), USA	15 teachers, principal, community liaison	Qualitative Case-Study; Data collection Interview and questionnaire	78% of students low-socioeconomic status; large ratio from immigrant families. Some children with 4/5 ACEs.	---	6
Trauma informed relationship model Post et al. (2020)	Kindergarten; Rural south east, USA	4 teachers	Phenomenological Qualitative case study, Interviews	School located in high poverty region, majority of children had experienced 1 or 2 ACEs.	----	8

Fig. 1 Flowchart of the literature review process and articles included and excluded at each stage. *Note.* This chart is adapted from the Preferred Reporting Items of Systematic Review and Meta-Analyses (PRISMA) guidelines (Moher et al., 2010)



secondary schools (Brunzell et al., 2019; Stokes & Turnbull, 2016; Stokes et al., 2019), as well as preschool to secondary schools (Dorado et al., 2016). All studies reported data from teachers, except one which only reported information collected from students (Stokes et al., 2019). Studies also collected data across various school personnel (e.g., teachers, principals, community liaison) (Dorado et al., 2016; Fleming, 2019; Stokes & Brunzell, 2019; Stokes & Turnbull, 2016; Stokes et al., 2019; VanderWegen, 2013; Wall, 2020). The NHMRC levels of evidence for quantitative studies was level III-2 for three studies (Padak, 2019; Rishel et al., 2019; Saint Gilles & Carlson, 2020), level III-3 for one study (Dorado et al., 2016), and level IV for four studies (Brunzell et al., 2019; Fleming, 2019; Holmes et al., 2015; Stokes & Turnbull, 2016). Five qualitative studies were included in the final review. CASP criteria met was 6 for one study (Wall, 2020) 7 for three studies (Brunzell et al., 2019; Stokes et al., 2019; VanderWegen, 2013), and 8 for one study (Post et al., 2020), suggesting that all qualitative studies met most criterion evaluated. Other study

characteristics and a description of the frameworks, training, strategies, and outcomes are presented in Tables 2 and 3.

Methods and frameworks of relationship building employed in educational settings

All 13 studies were evaluated and organised according to the trauma-informed practice framework employed: established (i.e., frameworks widely implemented and recognised in the trauma-literature), eclectic (i.e., frameworks that incorporated a range of trauma-informed resources), or relationship-building specific (i.e., frameworks which main focus is to establish healthy teacher-student relationships).

Established trauma informed frameworks that incorporate relationship building

Eight studies included trauma informed frameworks that incorporated relationship building as a module within the

Table 3 Relationship building strategies within trauma-informed educational settings: frameworks, training, strategies, and outcomes

Study (publication year)	Trauma informed framework/ Modules	Training and program support	Relationship building strategies	Outcomes and themes on relationship building training	Other outcomes
Established trauma-informed frameworks					
Dorado et al. (2016)	Attachment, Regulation, and Competency (ARC)	1.5 and 5 years and provided an ARC framework across 3 tiers; that is universal, selective, and targeted supports, across tiers 1 to 3, respectively. On-site consultation provided.	Attachment/Self-regulation strategies (ARC). Psychoeducation provided to all staff regarding how trauma affects relationships. Teaching through metaphors (e.g., learning brain versus survival brain, horse and rider metaphor. Development of disciplinary policies that support student's need of safety and stable relationships. Therapy for child and to help teachers and family members interactions with the child (i.e., consistency, being attuned to student's needs)	Child and Adolescents Needs and Strengths (CANS) questionnaire suggest significant improvement in measures of attachments (improved ability to relate to others).	CANS questionnaire suggest improvement in all areas of trauma-related symptoms. Knowledge regarding vicarious trauma for teachers increased; children's classroom engagement increased.
Rishel et al. (2019)	ARC	Training prior to start of school year. Parent and teacher training provided. A TIES liaison is present at the school 2 days a week, consults with teachers and observes classrooms.	Attachment component (ARC). TIES staff aim to build strong relationships with teachers, provided the teachers ways of building attachment in the classroom).	Trauma informed classrooms had greater measures of emotional support at follow-up compared to baseline in comparison to no-trauma informed classrooms	Trauma informed classrooms had greater measures of classroom organisation compared to no-trauma informed classrooms There were no differences in instructional support.
Saint Gilles and Carlson (2020)	ARC	6 weeks training provided to staff	Attachment component (ARC). Teachers were provided with a list of strategies targeting attachment, regulation, and competency. Three strategies were chosen by the teacher and implemented across 3 weeks.	Lower negative climate post-test, moderate positive climate, and low/moderate teacher sensitivity	Teachers' ratings of fidelity to the program varied from low to high. Teachers reported that they could use the skills learnt but the level of confidence in dealing with trauma affected students remained the same after training. Lower levels of internalising behaviours were reported after the program for children who had experienced the most severe form of trauma.

Table 3 (continued)

Study (publication year)	Trauma informed framework/ Modules	Training and program support	Relationship building strategies	Outcomes and themes on relationship building training	Other outcomes
VanderWegen (2013)	ARC	Two-year professional development training provided through the Collaborative Learning for Educational Achievement and Resilience (CLEAR) initiative grant. Program entails monthly and on-site weekly support for staff, students and families	Attachment component (ARC). Morning greetings to connect early in the day, willow time where students prepare for the day and teacher connects with students individually or as groups. Students could spend time with the principal sharing and calming down.	Teacher's practices change and the day was restructured to incorporate relationship building activities. Themes that emerged from interviews: the power of relationships school-wide, creating safe places for learning. Teachers commented on the value of relationship before academics. Teachers reported the impact of relationship building practices on academic outcomes.	Themes that emerged from interviews: support by the leadership is key to creating trauma-sensitive schools. The whole school needs to be participant of trauma informed practices in collaboration.
Brunzell et al. (2019)	Berry Street Education Model/Trauma Informed Positive Education (BSEM/TIPE) Domains: Self-regulatory abilities, relational capacities, and psychological resources. Relationship building is regarded essential at all levels.	See Stokes and Turnbull (2016)	Strategies to build Attachment: Unconditional positive regard, empathy, active constructive responding, separate student from their behaviour, using emotional intelligence in relationships. Teachers were encouraged to try the strategies that best suited their classroom.	Teachers described the difficulty of showing unconditional positive regard to a student who is resisting relationships. Teachers reported the usefulness of physical positioning to connect with the student. Teachers noted that reflective practices helped them translate theory to practice. Increasing psychological resources as a classroom helped students connect with each other.	Implementing growth mindset strategies made a difference to the classroom environment and culture. Trauma informed practice was used to help trauma-affected students reach their goals.

Table 3 (continued)

Study (publication year)	Trauma informed framework/ Modules	Training and program support	Relationship building strategies	Outcomes and themes on relationship building training	Other outcomes
Stokes and Brunzell (2019)	(BSEM/TIPE)	See Stokes and Turnbull (2016)	An emphasis was placed on following a sequence where strategies built on each other to enable the child to learn (i.e., firstly facilitating self-regulation to enable relationship building, and finally increasing the student’s resources for learning). Strategies were customised by the teacher. Weekly self-reflection meetings implemented.	Teachers noted that the training provided an understanding of the need to support the child emotionally for engagement and assisted classroom management. Teachers reported being more aware of the need of co-regulation strategies to be attuned to the student’s needs and increase the relational capacity. Students reported feeling more connected to the school.	Suspension decreased over-one year period from 57 students down to 7 students. Teachers noted that the regulation strategies implemented for the students were effective for their personal self-regulation.
Stokes and Turnbull (2016)	(BSEM/TIPE)	A sequence of professional development sessions conducted. Schools have been participating for 12 months or more. Sessions were customised to the needs of each educational setting and conducted by Berry Street trainers. Teachers were trained on a new domain each school term. Strategies were encouraged to be used immediately after the training and reinforced during weekly meetings. Each session covered a different component and was interactive where trainer expertise, peer-collaboration, and sharing individual strategies was encouraged. Trainers model strategies through feedback.	Focus on repairing relational capacities through unconditional positive regard, redefining power, showing empathy, focusing on person praise, providing constructive responding, encouraging healthy relationships throughout the school, encouraging teacher self-care.	Post intervention teachers became more focused on implementing strategies to establish and reinforce positive relationships in order to teach effectively. Teachers reported that strategies improved relationships as they learnt to look at students with greater empathy and this impacted teaching and hence learning. Students reported feeling understood, accepted amongst teachers and their classmates compared to previous years.	Teachers reported feeling more equipped in using positive discipline strategies and more prepared to teach. Students improved in self-regulation and concentration skills as well as academically.

Table 3 (continued)

Study (publication year)	Trauma informed framework/ Modules	Training and program support	Relationship building strategies	Outcomes and themes on relationship building training	Other outcomes
Stokes et al. (2019)	(BSEM/TIPE)	Schools had implemented the program for at least a year and training their teachers, staff, and students. Schools had different progress in covering the program domains. Students were taught the different strategies by their teachers within the classroom environment with different visual and auditory approaches modalities	Students were taught strategies that would help them build relationship and deal with social challenges. Strategies included brain-breaks and focus and de-escalation charts to calm down, recognition of character strengths for self-awareness and recognition of strengths in others. Resilience persevering and not giving up when faced with relational challenges.	Students reported learning to build friendships with their peers. Students reported that learning to control emotions helped improve relationships with family and other outside of school relationships. Students reported better peer relationships which improved the classroom learning environment. Students reported being able to treat others with more respect as they became more self-aware of the impact of their behaviours on others.	Students noted that some modalities of learning strategies were not engaging or too many strategies presented at once would become difficult to process and implement. Some students voice the need for teacher-student collaboration in learning strategies rather than having a teacher-centred approach.
Eclectic trauma informed models employing relationship building					
Holmes et al. (2015)	The programs integrates ARC, Trauma-Focused Cognitive Behavioural Therapy (TF-CBT), and Early Childhood Mental Health consultation	Training was provided to all staff (teachers, administrator, bus drivers, kitchen staff) during a 1- or 2-year period in ten 2-hour sessions. Training is also provided to parents. The 3 ARC domains were covered, and staff tailored strategies to suit their context.	ARC concepts and activities are modified for children aged 3–5 (e.g., props and games to develop attachment and self-regulation). Adults are taught to recognise how the child’s behaviour relates to the ARC domains Individual TF-CBT for the child or parent and child. Childhood mental health consultation for classrooms to help create a trauma-sensitive classroom. Peer based mentoring for teacher support.	Over a 2-year period the classroom environment, as measured by CL-ASS scores of Emotional and instructional support and organisation) showed improvement.	Attentional skills improved and children exhibited less externalising and oppositional defiant behaviours.

Table 3 (continued)

Study (publication year)	Trauma informed framework/ Modules	Training and program support	Relationship building strategies	Outcomes and themes on relationship building training	Other outcomes
Fleming (2019)	Trauma-sensitive school model in elementary and middle-schools. Flexible framework adaptable to different settings.	Training for educators on effects of trauma, responses, and strategies. Coaching for resilience teams who created, implemented, and monitor strategies.	Nine strategies focusing on building and maintaining connection with students and families: Elementary School Calm Down/Safe Space; Check-In/Check-Out Buddies; Pearls for Girls; Tie Up Tuesdays Middle School Bounce Slips; Calm Down Space; Choices; Home Room; Power	Teachers discussed how strategies: facilitated being an influence in home environments; help maintain open lines of communication with students and families; ensured the student had at least one adult to connect with at school; provided a foundation for teaching.	The model enabled adults to be intentional in their relationships and understand the academic and social challenges better.
Padak (2019)	Jump Start for Success pilot. Strategies were selected from trauma-informed organisations (National Organization for Treating Trauma, National Child Traumatic Stress Network) and workshops (“Stressed Brains Can’t Learn”, “Building a Resilience Program for At-Risk Students”, and “Ten Steps to Creating a Trauma Informed School”)	A selected core team from administration and staff members were provided with 6 monthly training sessions. This team disseminated the information with other staff members. Resources were made available to all the school through google classroom.	Students share a social activity with other teachers and mentors before the start of the school year. Trauma affected students placed in a trauma-sensitive classroom with trained teacher. Relationship with parents encouraged through early school year meetings to determine best way of communication. Activities at the start of the year to get to know students and build rapport. Class circle to build rapport, share strategies and create community within the classroom. Students had adult mentor.	The most mentioned reference made by teachers was the ability to build connections with students. All 25 teachers reported they changed their previous practices. Getting to know the students at an individual level facilitated relationship building.	Attendance rates improved. Students’ surveys suggested some improvement in school perception although results were inconclusive.
Wall (2020)	Composed of three strands: Trauma education; socioemotional training; relationship building	Trauma education provided by Professional Education Systems twice a year; socioemotional training (Leader in Me program) once a year and five yearly boosters; relationship building three times a year provided by Leading Together.	Encouragement of conversations over punishment; class meetings for rapport building, affirmation time, enforcement “7 Habits of Happy Kids” principles, establishment of teacher-teacher relational networks, outreach programs for parents provided by the school	Less parental defensiveness and students improved in their socio-emotional skills; better connections with families and students; different measures of success other than academic performance, more understanding towards students.	Students show academic improvement; greater self-advocacy and confidence in students.

Table 3 (continued)

Study (publication year)	Trauma informed framework/ Modules	Training and program support	Relationship building strategies	Outcomes and themes on relationship building training	Other outcomes
Post et al. (2020)	Trauma informed relationship model Child-Teacher Relationship Training (CTRT) based on relationship building through play	Two-phased training. First phase training is followed by a 30-minute play session with student. Second phase the training is conducted within the classroom.	Focus on changing attitude towards children and strategies implemented in a child-centred play therapy format. Play therapy strategies: returning responsibility, esteem building, choice giving, limit setting, tracking/attending fully	Teachers reported being better attuned to the child; less stress; better understanding around the effect of trauma resulting in motivation to use communication strategies.	Modelling and coaching within the classroom setting helped build confidence of teachers and consolidate the skills.

model. These models were: *the Berry Street Education Model (BSEM)*, also referred to as *Trauma Informed Positive Education (TIPE)* (Stokes & Turnbull, 2016), the *ARC* model (Blaustein & Kinniburgh, 2018) and the *Healthy Environments and Response to Trauma (HEARTS)* program based on ARC (Dorado et al., 2016).

BSEM/TIPE Four studies reported evaluating the BSEM/TIPE model (Brunzell et al., 2019; Stokes & Brunzell, 2019; Stokes & Turnbull, 2016; Stokes et al., 2019). The BSEM/TIPE model is described as a strengths-based model based in positive education and the field of trauma that seeks to promote both, healing and growth from trauma. It includes three tiers of therapeutic growth: regulatory abilities, repairing disrupted attachments, and increasing the student’s psychological resources. Included in these three tiers are five domains that enable this therapeutic growth: namely, body (e.g., physical regulation activities), stamina (e.g., building resilience), engagement (e.g., providing activities that promote interest), character (e.g., identification of strengths), and relationship (e.g., strategies that promote safe environments). The relationship domain is described as anchoring the four other domains and it consists of classroom practices and planning that focus on supporting attachment-based strategies that centre on developing a sense of belonging, comfort, safety, trust and self-worth. The three tiers are therefore interrelated. For example, although tier one relates to learning self-regulatory abilities, this regulatory process occurs by the assistance of co-regulation through stable attachments to others (Stokes et al., 2019). Therefore, the classroom is considered in this model as key place to establish relationships (Brunzell et al., 2015). Unconditional positive regard is promoted in this model and refers to putting aside difficult behaviours that the student exhibits whilst accepting and supporting the student.

The wider aim of the studies was to evaluate the effectiveness of BSEM/TIPE across the education system from various school staff, teachers’ and students’ standpoints (Stokes & Turnbull, 2016; Stokes et al., 2019). The Stokes and Brunzell (2019) and Brunzell et al. (2019) studies included data from Stokes and Turnbull (2016) large data set but focused on different aspects of the project. The Brunzell et al. (2019) study evaluated the phenomenological experience of teachers and the changed practices in their classrooms after implementation of the BSEM/TIPE framework. The Stokes et al. (2019) study focused on young people’s experiences within an educational setting employing this framework. Data across primary (Stokes & Brunzell, 2019) or both, primary and secondary schools (Brunzell et al., 2019; Stokes & Turnbull, 2016; Stokes et al., 2019) were reported.

Using mixed measure quantitative and qualitative research approaches (see Table 3), positive outcomes related

to relationship building were reported by all studies. Stokes and Turnbull (2016) noted that primary and secondary school teachers had a greater focus on establishing positive relationships as they became more aware of the central role of relationships for effectiveness in teaching. Greater ability to co-regulate was also reported by primary school teachers (Stokes & Brunzell, 2019). This was reportedly achieved by positioning themselves side-by-side and being attuned to their students' needs whilst maintaining an attitude of unconditional positive regard (Stokes & Brunzell, 2019). Similarly, the study by Brunzell et al. (2019) across primary and secondary schools reported that healthy attachments within the classroom need to be framed through an unconditional positive regard mindset. Such strategies were particularly useful with students who resisted and rejected relational interactions by testing the unconditional commitment of their teachers. Reported strategies during the focus groups sessions included positioning themselves at eye level and shoulder-to-shoulder to facilitate interaction and encourage co-regulation; encouraging co-regulation through performing one-to-one activities that were repetitive and rhythmic, such as throwing a ball; and the use of a calm voice.

In addition, the Stokes and Brunzell (2019) study reported that the benefit of implementing the BSEM/TIPE framework across all staff, starting at the leadership level, is that the focus of the school becomes not only on academic performance but the establishment of healthy connections. The Stokes and Brunzell (2019) study reported that the school survey data completed by teachers indicated that students felt more connected, accepted and understood by teachers and classmates compared to previous years before BSEM/TIPE was implemented. Being able to employ the strategies immediately and modelling those strategies to students was also reported as an advantage by teachers in this model (Stokes & Brunzell, 2019). In the Stokes et al. (2019) study students reported benefits of the program in their social circles outside of school, including better relationships with their families.

ARC Four studies have employed the ARC model (Dorado et al., 2016; Rishel et al., 2019; Saint Gilles & Carlson, 2020; VanderWegen, 2013). ARC is a trauma informed framework with three core domains: Attachment, Regulation, and Competency. The attachment components are the building blocks for the other pillars of this model (i.e., regulation and competency) and are design to help the systems around the child become strengthened (Blaustein & Kinniburgh, 2018). The building blocks underpinning attachment within the ARC model are attunement, the teacher and carer's affect management, consistent responses, and having routines and rituals. These central tenets have been incorporated in the program to address factors that are important in building safe relationships within the care system of children

with a history of trauma. The framework addresses regulation awareness to enhance the children's understanding of their internal experience and how to modulate and express these internal experiences. Finally, the framework addresses the importance of building resilience through social connection in the community and engagement with the academic environment.

The general aim in all four studies was to evaluate the impact of trauma-informed training for staff based on the ARC framework in educational settings. Saint Gilles and Carlson (2020) compared data between preschool classrooms where teachers and assistants were trained with the ARC framework compared to preschool classrooms where teachers and assistants were not trained with the ARC framework. Pertinent to relationship building, the study evaluated the Attachment component of the intervention by assessing the quality of relationships within the classroom environment and emotional support (e.g., teacher's sensitivity, positive climate), classroom organisation/routines, and teacher's feeling of self-confidence. All of which are meant to determine the quality of attachments within the classroom. By contrast, VanderWegen (2013) concentrated on qualitatively evaluating the primary school teacher's implementation of practices that promoted relationship building and their perceived outcomes. Rishel et al.'s (2019) study aimed to evaluate the effect of a pilot program implemented for two years in elementary classrooms called Trauma-Informed Elementary Schools (TIES) based on the ARC framework. The study compared TIES classrooms and non-TIES classrooms on measures that reflect quality of classroom interactions based on ARC building blocks at two time periods (i.e., baseline and follow-up) (Rishel et al., 2019). The Dorado et al. study (2016) evaluated the impact of a trauma-informed model based on ARC principles on trained school personnel working with kindergarten through to year 8 students.

Quantitative analyses suggested significantly less internalising behaviours after program implementation in children who had experienced severe trauma in the Saint Gilles and Carlson (2020) study. No other significant differences were identified by quantitative measures in the Saint Gilles and Carlson (2020) study. However various positive outcomes were reported by all studies qualitatively. That is, Saint Gilles and Carlson (2020) found that although teachers who received the ARC intervention noted greater knowledge regarding trauma informed care, no differences were found between the classrooms implementing the ARC intervention and those that did not in relation to measures of attachment (Saint Gilles & Carlson, 2020). Teachers also reported not feeling any more equipped to deal with trauma-affected students after the training. However, results could have been impacted by the length and timing of the observations, which may not have captured the positive elements of the

program. Furthermore, the participant numbers were small to perform quantitative analyses.

By contrast, through theme analyses, the VanderWegen (2013) study identified an increase in implementation of trauma-sensitive practices as reported by staff and teachers in the school. The power of relationship building, creating rituals, and safe spaces for learning were identified. For example, all teachers interviewed mentioned “morning greetings” as an important activity that enables the teachers/staff to connect with the students and make relationship a priority over academic success (VanderWegen, 2013). Similarly, Rishel et al. (2019) reported that participating classrooms had a significant increase in the level of emotional support compared to comparison classrooms. Through quantitative comparative analyses of the CANS questionnaires pre and post treatment, Dorado et al. (2016) concluded that students who received the intervention exhibited a significant improvement in symptoms related to trauma including difficulties with attachment; hence the student’s ability to relate and develop healthy relationships with others improved significantly.

Trauma informed models employing eclectic approaches of relationship building not based on a specific model

Four studies included eclectic approaches of trauma informed practice where a variety of sources were employed with flexibility to fit the particular educational needs in each context. The studies included students and staff from preschool, elementary, and middle school. The primary aims of two of the studies was to evaluate the outcomes of trauma-informed practices on teachers’ and preschool students’ behaviours (Holmes et al., 2015; Wall, 2020). The focus of the other two studies was in understanding the elementary and middle school teachers’ (Fleming, 2019) and students’ (Padak, 2019) perceptions of the trauma-informed programs.

The programs employed focused on slightly different facets of relationship building. The Head Start Trauma Smart (HSTS) program (Holmes et al., 2015) integrated three established trauma-informed programs in a preschool setting, namely ARC, Trauma-Focused Cognitive Behavioural Therapy (TF-CBT), and early childhood mental health consultation. The ARC model focuses on strengthening the relational systems around the child and therefore concentrated on building parent-child and teacher-child relationships (Holmes et al., 2015). Quantitative results in the Classroom Assessment Scoring System (CLASS), which provides a measure of relationship quality within the classrooms, noted an overall trend where scores improved over a period of 2 years.

By contrast, The Jump Start for Success program (Padak, 2019) implemented a variety of resources books, workshops and conferences from which different strategies were

adopted in an elementary school. The components of the program centred around building strong rapport with students, creating safe learning environments, as well as supporting and educating families and staff. Further, it involved mentorship where staff from the core team were paired with a trauma-affected student. The student met with their respective mentor a week before school started as well as other key school personal. The student and their families were also contacted by the schoolteacher to establish collaborative connections with the family. Early in the year, rapport building activities were incorporated by the teacher in the classroom to get to know the child better. Questionnaire data from families was also collected at this point and individualised behavioural plans were created according to the child’s needs. A sense of classroom community was encouraged in daily classroom circles that lasted around 10–15 min where they did activities that would help build connections and develop a sense of community within the classroom. Outcome from interviews revealed that building strong connections and rapport with students was the most referenced component in creating trauma sensitive classrooms and was noted as the greatest priority for teachers. Relationship building was encouraged through mentoring, “getting to know you” classroom activities, being available at the door to greet the students at the start of the day and listening attentively. All these were reported by teachers to change their practices from focusing on academics to focusing on the whole person. Quantitative analysis revealed attendance rates improved across the elementary school after the program had been implemented.

The elementary and middle schools evaluated by Fleming (2019) implemented a program provided by the state of Massachusetts, which included practices across six domains. Regarding relationship building, within the staff training domain, practices focused on strengthening relationships between staff, students and their caregivers (Fleming, 2019). Within the discipline domain, the school adopted policies that promoted respectful relationships and trauma informed communication protocols that would strengthen teacher-student and teacher-family relationships. The authors reported four emerging themes which were based on data from interviews with teachers; four of which were specifically related to relationship building. The first theme related to maintaining home and school connections. The possibility of influencing the family dynamics, as well as increasing the likelihood that the student would trust the teacher, was seen as a valuable outcome of establishing teacher-family relationships. The second theme related to encouraging the development of caring relationship with adults within the school. Having at least one adult who the student could attend to for support was considered as an essential foundation for teaching. Placing relationships before academic goals was seen as changing the school’s learning environment. A third theme

was verbally expressing affection to the students. Understanding the difficulties the students were experiencing at home, enabled teachers to express this affection, which in turn, was reported to motivate students to achieve.

Similarly, one of the main goals of the program evaluated by Wall (2020) in elementary schools was to establish a healthy learning community where relational connections are considered important in fostering environments that facilitate learning. The program was centred on creating relational trust, working in collaboration, and providing empowerment within school systems. Three strands were covered by the program. Firstly, education for teachers which focused on three different areas: understanding behaviour in a child after trauma in order to encourage calm and supportive relationships with students; secondly, the development of socio-emotional skills to facilitate the student's ability to interact with others; and thirdly, addressing compassion fatigue amongst the adults who support trauma-affected children (Wall, 2020). Results suggest that, after the implementation of trauma-informed training, teachers avoided punishment or rewards to manage behaviour and instead focused on communication that help foster teacher-student relationships. Also, teacher interviews and questionnaires revealed that teacher-teacher relational networks and communication were also strengthened which provided peer support and encouragement. Teacher-parent relationships were fostered by providing a variety of outreach programs and by supporting parent-child relationships. The outcome of better parent-teacher relationships were less parental defensiveness which also impacted teacher-student relationships.

Trauma informed relationship model

One study employed a trauma-informed model which only focused on relationship building, namely, *Child-Teacher Relationship Training* (CTRT) (Post et al., 2020). The purpose of this study was to evaluate the effects of employing trauma-informed training that focuses on the relationship between kindergarten teachers and children in an educational community with high levels of poverty. Regarding relationship building, the study evaluated the teachers' levels of stress, their perception of the children, and their implementation of CTRT skills. CTRT focuses on developing stronger relationships between the teacher and child by using techniques implemented in play therapy, such as returning responsibility, esteem building, and tracking or attending to the child fully.

The program was run in two phases. During phase 1, after the first four group sessions, the teachers engaged in a 30-minute play with one of their students before applying the strategies in the classroom. The intervention in phase 2 was located in the classroom where the trainers model skills. Group sessions also continued during phase 2 where the

teachers reflected on their experiences. Positive outcomes were reported by the teacher and relationship building at different levels (i.e., teacher-student, teacher-researcher, and student-researcher relationships) were found to be important. Teachers reported learning more effective ways of communicating and a greater willingness to be patient, as they better understood the effects of trauma on children's behaviour and the teacher's influential position as sources of stability in the child's life. The relationships were strengthened as the dynamics changed, with teachers reporting feeling less stressed, and children's displaying calmer behaviours as a result of the teacher's changing the language they used. Teachers also believed the changed dynamics were impactful for the whole classroom, not only the trauma-affected children. Further, teachers reported that the relationship between the teacher and the researcher provided support, modelling and reassurance as they implemented the learnt skills. Similarly, it was reported by the teacher that the children became glad when the researchers came to participate in the classroom, as they anticipated positive attention from other adults.

Discussion

This systematic review sought to evaluate the relationship building strategies implemented within trauma-informed practices in educational settings. A literature search found quantitative randomised controlled trials are lacking, and most research involves case studies and qualitative designs. Whilst randomised trials have the advantage of providing experimental designs where better causation predictions can be ascertained, qualitative case study designs have the advantage of providing deeper insights regarding the distinct practices across educational settings and across individuals (Kelle, 2006). In addition, qualitative studies are useful when understanding complex phenomena and translating research into practice (Kalu & Bwalya, 2017). The predominantly qualitative research available on trauma-informed, relationship building activities has the advantage of revealing strengths and barriers to program delivery, which could be further explored through randomised quantitative designs (Kalu & Bwalya, 2017). The present systematic review provides further understanding across the qualitative and quantitative research in this area. Further, given that most studies have been conducted in the USA, followed by a few studies within the Australian educational system, results need to be interpreted in light of different cultural contexts and educational systems. This is one aspects of ecological systems theory which will be discussed more here in framing the results of this review.

The present review found predominantly positive outcomes relating to relationship building strategies across

the three types of trauma-informed frameworks employed, namely, established, eclectic, or relationship building specific. Positive outcomes reported included improved relationships with teachers (Rishel et al., 2019; VanderWegen, 2013), better relationships with other students (Stokes et al., 2019), greater use of relationship building practices, an increased willingness of teachers to develop better relationships with their trauma-affected students (Stokes & Turnbull, 2016), and improved relationships with families (Fleming, 2019; Wall, 2020). However, the review suggests that the practices employed to encourage healthy connections with trauma-affected students varies across educational settings. This is expected given that schools adapt their specific trauma-informed practices to the needs of their students (e.g., nature of trauma, grade), the communities they service, and inherent differences between schools (Chafouleas et al., 2019). However, this also raises the important consideration of how schools continue to monitor and evaluate the outcomes of their trauma-informed practices. The review found that differences in delivery of trauma-informed practice are most evident in schools that have employed eclectic models, but the variability of implementation and training is also evident across settings that have employed the same trauma-informed framework.

The two established models that have been employed in school settings, ARC and BSEM/TIPE, acknowledge that the practices within the classroom can be implemented with flexibility to suit the needs of the school. During training, the BSEM/TIPE model, for instance, provided a list of strategies that teachers can employ to build connections with their students, but teachers are encouraged to tailor these strategies to suit their classroom needs and the needs of their students (Stokes & Turnbull, 2016). In contrast to the ARC model, the BSEM/TIPE was reported to be taught within the school curriculum with students noting improved relationships with teachers, other students, and family members. Flexibility in implementation was also reported in ARC studies. For example, in the Rishel et al. (2019) study, ARC staff observed and supported the teacher's individual and differing strengths in their connection building strategies with students. This mirrors the student-centred approach of congruence, which describes the importance of teachers being genuine and authentic during their interactions with students (alongside the other student-centred principles of unconditional positive regard and empathy). However, as noted by Berger (2019), teachers require ongoing education and support to continue to embody these principles of student-centred, trauma-informed practice. Training and support provided to teachers can be linked back to a child's exosystem; practices within the child's exosystem (e.g., the teacher receiving training) are seen to benefit the student indirectly (Crosby, 2015).

More specifically, within the exosystem practices, most educational settings which adopted the ARC framework implemented support for teachers by trained facilitators who would model, support, and provide feedback to teachers regarding their practices (Dorado et al., 2016; Rishel et al., 2019; VanderWegen, 2013). In Dorado et al.'s (2016) study, guidance was also provided to the school's care team when creating support plans for students by ensuring they use practices that protected the teacher-student relationships. Further, in Post et al.'s (2020) study, which implemented the only relationship-specific trauma-informed approach, establishing trusting relationships with the teachers and their trainers and ensuring that teachers received feedback on their practice was considered key to successful implementation of those strategies. By contrast, in an ARC study that did not implement onsite supports (Saint Gilles & Carlson, 2020), the teachers reported that their confidence in using practices that dealt with trauma-affected students did not improve after training. Further, teachers noted that little supports were in place to help them cope with the challenges of relating to trauma-affected students. The authors acknowledge that, in addition to psychoeducation, it is essential that teachers receive other modes of assistance when dealing with trauma-affected students, such as therapy to prevent vicarious trauma. Hence, the results of this review suggest that relationship building strategies implemented within the classroom are more likely to be sustainable when teachers receive ongoing support. Further, these supports would be helpful in the prevention of vicarious trauma, though none of the reviewed studies directly measured this aspect of teacher wellbeing.

Other practices within the child's exosystem that were evident in this review included the provision of space for teachers to establish connections with their colleagues. For example, The BSEM/TIPE model encouraged within session peer-collaboration where teachers shared their strategies for working with trauma-exposed students with other teachers (Stokes & Turnbull, 2016). After each session, teachers were encouraged by trainers to implement new strategies and shared them with the rest of the group the following training session. Similarly, Wall's (2020) study, which employed an eclectic trauma-informed approach, provided ongoing peer support meetings and self-reflective groups with the purpose of preventing vicarious trauma, though the latter was not explicitly measured. During these sessions, colleagues also had the opportunity to share strengths and difficulties in the relationship building methods employed. Encouraging teacher-to-teacher connections would be beneficial in schools that cannot implement ongoing support from outside trainers. Further, results from the review suggest that both of these exosystem strategies, that is, trainer driven supports or teacher-to-teacher driven supports, facilitates translating training into practice. This is consistent with

other trauma-based research showing the effectiveness of ongoing training and support for teachers when responding to the needs of traumatised students (Berger, 2019).

Some studies in this review included practices within the child's mesosystem and the child's exosystem which included parental involvement. For example, the ARC framework emphasises the engagement of the whole students care system and, as such, encouraged the involvement of parents. These included practices within the child's mesosystem such as teacher's connecting with parents to encourage parental involvement in the classroom (Fleming, 2019; VanderWegen, 2013), and practices within the child's exosystem, such as psychoeducation and support for parents regarding relationship building with their children (Holmes et al., 2015; Rishel et al., 2019; Saint Gilles & Carlson, 2020; VanderWegen, 2013). Parental involvement was also found in eclectic trauma-informed frameworks. As part of establishing school-family connections, Padak's study (2019) reported that meetings with parents at the start of the school year were essential to establish the best mode of communication with them for the year. Also, parents with children who received individual therapy in the Holmes's (2015) study, were encouraged to attend therapy which included parent-child relationship training through parental skills sessions within a trauma-informed approach. Parental involvement did not form a large part of the relationship building strategies in the other studies, some of which employed BSEM/TIPE, eclectic, or the relationship-specific frameworks. The lack of parental involvement is concerning, especially for marginalised cultural and racial groups for whom connection between family and school is particularly important when establishing trust, communication, and school trauma-informed practices (Miller & Berger, 2023). Given the influence of microsystem relationships in a child's development, particularly in trauma-affected children (Crosby, 2015), parental involvement should be considered and evaluated in future research.

Limitations

A limitation of this review was not being able to ascertain the direct impact of relationship building practices on outcomes and wellbeing of trauma-affected students. In addition, as discussed earlier, educational settings adapt their strategies to the needs of the particular educational setting. Future research could consider randomised control trials comparing various relationship building strategies within the same educational setting and schools using the same trauma-informed framework. In addition, a phenomenological approach that further explores parents and students views regarding relationship building practices would add further insights in this area. This is particularly important given that teachers often misinterpret the experiences of their students

(Mitra, 2018). Finally, meta-analysis techniques would be useful in future reviews using a more stringent criteria for study selection. This could be based on study design, population, or educational setting type. The present review could inform the criteria selected in future review studies.

Conclusion

In conclusion, trauma-informed practices have addressed relationship building among trauma-affected students differently and implementation across schools is difficult to compare with the existent research method designs. However, results from this systematic review suggest that relationship building strategies within the school system need to be considered and implemented within a systems framework where teacher-child and teacher-family relationships are supported and encouraged. Results from this review suggest that, from an ecological systems perspective, relationship building strategies implemented at the microsystem level are fluid and should be tailored by the teacher according to strengths and the needs within the classroom. However, these relationships within the microsystem (teacher-student and teacher-parent) need to also be supported by exosystem strategies, such as supports by trainers or teacher-to-teacher-supports. Thus, part of effective implementation of relationship building practices is the ongoing training and support of teachers who are susceptible to vicarious trauma.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions

Data availability Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

Declarations

Ethical approval This article does not contain any studies with human participants performed by any of the authors.

Conflict of interest Michelle Wilson-Ching declares that she has no conflict of interest. Emily Berger declares that she has no conflict of interest.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Ainsworth, M. D. S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Lawrence Erlbaum Associates; Distributed by Halsted Press Division of Wiley.
- Alisic, E. (2012). Teachers' perspectives on providing support to children after trauma: A qualitative study. *School Psychology Quarterly*, 27(1), 51–59. <https://doi.org/10.1037/a0028590>
- Allen, K., & Bowles, T. (2012). Belonging as a guiding principle in the education of adolescents. *Australian Journal of Educational & Developmental Psychology*, 12(2012), 108–119. <https://files.eric.ed.gov/fulltext/EJ1002251.pdf>
- Berger, E. (2019). Multi-tiered approaches to trauma-informed care in schools: A systematic review. *School Mental Health*, 1–15. <https://doi.org/10.1007/s12310-019-09326-0>
- Berger, E., Bearsley, A., & Lever, M. (2021). Qualitative evaluation of teacher trauma knowledge and response in schools. *Journal of Aggression Maltreatment & Trauma*, 30(8), 1041–1057. <https://doi.org/10.1080/10926771.2020.1806976>
- Blaustein, M. E., & Kinniburgh, K. M. (2018). *Treating traumatic stress in children and adolescents: How to foster resilience through attachment, self-regulation, and competency*. Guilford Publications.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, 22(6), 723–742. <https://doi.org/10.1037/0012-1649.22.6.723>
- Bronfenbrenner, U. (1996). *The ecology of human development experiments by nature and design*. Harvard University Press.
- Brown, L. V., Dari, T., & Spencer, N. (2019). Addressing the impact of trauma in high poverty elementary schools: An ecological model for school counseling. *Creating caring and supportive Educational environments for meaningful learning* (pp. 135–153). IGI Global.
- Brunzell, T., Stokes, H., & Waters, L. (2019). Shifting teacher practice in trauma-affected classrooms: Practice pedagogy strategies within a trauma-informed positive education model. *School Mental Health*, 11(3), 600–614. <https://doi.org/10.1007/s12310-018-09308-8>
- Brunzell, T., Waters, L., & Stokes, H. (2015). Teaching with strengths in trauma-affected students: A new approach to healing and growth in the classroom. *American Journal of Orthopsychiatry*, 85(1), 3–9. <https://doi.org/10.1037/ort0000048>
- Caringi, J. C., Stanick, C., Trautman, A., Crosby, L., Devlin, M., & Adams, S. (2015). Secondary traumatic stress in public school teachers: Contributing and mitigating factors. *Advances in School Mental Health Promotion*, 8(4), 244–256. <https://doi.org/10.1080/1754730X.2015.1080123>
- Carrion, V. G., & Wong, S. S. (2012). Can traumatic stress alter the brain? Understanding the implications of early trauma on brain development and learning. *Journal of Adolescent Health*, 51(2), S23–S28. <https://doi.org/10.1016/j.jadohealth.2012.04.010>
- Chafouleas, S. M., Koriakin, T. A., Roundfield, K. D., & Overstreet, S. (2019). Addressing childhood trauma in school settings: A framework for evidence-based practice. *School Mental Health*, 11(1), 40–53. <https://doi.org/10.1007/s12310-018-9256-5>
- Critical Appraisal Skills Programme (2018). CASP Qualitative Checklist [online]. <https://casp-uk.net/casp-tools-checklists/>
- Crosby, S. D. (2015). An ecological perspective on emerging trauma-informed teaching practices. *Children & Schools*, 37(4), 223–230. <https://doi.org/10.1093/cs/cdv027>
- Davies, S., & Berger, E. (2019). Teachers' experiences in responding to students' exposure to domestic violence. *Australian Journal of Teacher Education*, 44(11), 96–109. <https://doi.org/10.14221/ajte.2019v44.n11.6>
- Dorado, J. S., Martinez, M., McArthur, L. E., & Leibovitz, T. (2016). Healthy environments and response to trauma in schools (HEARTS): A whole-school, multi-level, prevention and intervention program for creating trauma-informed, safe and supportive schools. *School Mental Health*, 8(1), 163–176. <https://doi.org/10.1007/s12310-016-9177-0>
- Dugal, C., Bigras, N., Godbout, N., & Bélanger, C. (2016). *Childhood interpersonal trauma and its repercussions in adulthood: An analysis of psychological and interpersonal sequelae*. IntechOpen. <https://doi.org/10.5772/64476>
- Fleming, S. W. (2019). *A mixed methods multiple case study of the initial implementation of the trauma-sensitive schools model in an elementary and middle school* (Publication No. 27794903) [Doctoral dissertation, North Carolina State University]. ProQuest One Academic; Social Science Premium Collection. <https://www.proquest.com/dissertations-theses/mixed-methods-multiple-case-study-initial/docview/2386167123/se-2?accountid=12528>
- Folger, A. T., Putnam, K. T., Putnam, F. W., Peugh, J. L., Eismann, E. A., Sa, T., Shapiro, R. A., Van Ginkel, J. B., & Ammerman, R. T. (2017). Maternal interpersonal trauma and child social-emotional development: An intergenerational effect. *Paediatric Perinatal Epidemiology*, 31(2), 99–107. <https://doi.org/10.1111/ppe.12341>
- Fraser, D., & Price, G. (2011). Learning as a shared social endeavour. *Journal of Artistic & Creative Education*, 5(1), 6–30.
- Frieze, S. (2015). How trauma affects student learning and behaviour. *BU Journal of Graduate Studies in Education*, 7(2), 27–34.
- Harvey, M. R. (1996). An ecological view of psychological trauma and trauma recovery. *Journal of Traumatic Stress*, 9(1), 3–23. <https://doi.org/10.1007/BF02116830>
- Hepp, J., Schmitz, S. E., Urbild, J., Zauner, K., & Niedtfeld, I. (2021). Childhood maltreatment is associated with distrust and negatively biased emotion processing. *Borderline Personality Disorder and Emotion Dysregulation*, 8(1), 1–14. <https://doi.org/10.1186/s40479-020-00143-5>
- Holmes, C., Levy, M., Smith, A., Pinne, S., & Neese, P. (2015). A model for creating a supportive trauma-informed culture for children in preschool settings. *Journal of Child and Family Studies*, 24(6), 1650–1659. <https://doi.org/10.1007/s10826-014-9968-6>
- Huang, X., Lin, J., & Demner-Fushman, D. (2006). Evaluation of PICO as a knowledge representation for clinical questions. *AMIA Annual Symposium proceedings. AMIA Symposium*, 2006, 359–363. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1839740/>
- Kalu, F. A., & Bwalya, J. C. (2017). What makes qualitative research good research? An exploratory analysis of critical elements. *International Journal of Social Science Research*, 5(2), 43–56. <https://doi.org/10.5296/ijssr.v5i2.10711>
- Kelle, U. (2006). Combining qualitative and quantitative methods in research practice: Purposes and advantages. *Qualitative Research in Psychology*, 3(4), 293–311. <https://doi.org/10.1177/1478088706070839>
- Maynard, B. R., Farina, A., Dell, N. A., & Kelly, M. S. (2019). Effects of trauma-informed approaches in schools: A systematic review. *Campbell Systematic Reviews*, 15(1–2), e1018. <https://doi.org/10.1002/cl2.1018>
- McLaughlin, K. A., & Lambert, H. K. (2017). Child trauma exposure and psychopathology: Mechanisms of risk and resilience. *Current Opinion in Psychology*, 14, 29–34. <https://doi.org/10.1016/j.copsyc.2016.10.004>
- Miller, J., & Berger, E. (2023). Supporting First Nations students with a trauma background in schools. *School Mental Health*. <https://doi.org/10.1007/s12310-021-09485-z>

- Mitra, D. (2018). Student voice in secondary schools: The possibility for deeper change. *Journal of Educational Administration*, 56(5), 473–487. <https://doi.org/10.1108/JEA-01-2018-0007>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2010). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *International Journal of Surgery*, 8(5), 336–341. <https://doi.org/10.1136/bmj.b2535>
- NHMRC (2009). *NHMRC levels of evidence and grades for recommendations for developers of guidelines*. Canberra, Australia. [https://edit.nhmrc.gov.au/sites/default/files/images/NHMRC%20Levels%20and%20Grades%20\(2009\).pdf](https://edit.nhmrc.gov.au/sites/default/files/images/NHMRC%20Levels%20and%20Grades%20(2009).pdf)
- Padak, S. (2019). *Implementation of a trauma-informed approach at one elementary school: An action research study* (Order No. 13866003). ProQuest One Academic. (2243669080). <https://www.proquest.com/dissertations-theses/implementation-trauma-informed-approach-at-one/docview/2243669080/se-2>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. <https://doi.org/10.1136/bmj.n71>
- Panlilio, C. C., Ferrara, A., & MacNeill, L. (2019). Trauma, self-regulation, and learning. *Trauma-informed schools* (pp. 61–78). Springer.
- Perfect, M. M., Turley, M. R., Carlson, J. S., Yohanna, J., & Saint Gilles, M. P. (2016). School-related outcomes of traumatic event exposure and traumatic stress symptoms in students: A systematic review of research from 1990 to 2015. *School Mental Health*, 8(1), 7–43. <https://doi.org/10.1007/s12310-016-9175-2>
- Post, P. B., Grybush, A. L., Elmadani, A., & Lockhart, C. E. (2020). Fostering resilience in classrooms through child-teacher relationship training [Personnel attitudes & job satisfaction 3650]. *International Journal of Play Therapy*, 29(1), 9–19. <https://doi.org/10.1037/pla0000107>
- PRISMA Statement, & Retrieved, P. R. I. S. M. A. (2021). January 30, 2023, from <https://www.prisma-statement.org/PRISMAStatement/>
- Rishel, C. W., Tabone, J. K., Hartnett, H. P., & Szafran, K. F. (2019). Trauma-informed elementary schools: Evaluation of school-based early intervention for young children [Curriculum & Programs & Teaching Methods 3530]. *Children & Schools*, 41(4), 239–248. <https://doi.org/10.1093/cs/cdz017>
- Saint Gilles, M. P., & Carlson, J. S. (2020). A pilot study on the effects of a supplemental trauma intervention within a Head Start preschool program. *Research and Practice in the Schools*, 7(1), 49–69.
- Spencer, S. (2019). *What About Us? Vicarious Trauma in our “Systems”*. [Doctoral dissertation, Lynn University]. *Graduate Student Theses, Dissertations, and Portfolios*. <https://spiral.lynn.edu/etds/353>
- Spinazzola, J., Van der Kolk, B., & Ford, J. D. (2018). When nowhere is safe: Interpersonal trauma and attachment adversity as antecedents of posttraumatic stress disorder and developmental trauma disorder. *Journal of Traumatic Stress*, 31(5), 631–642. <https://doi.org/10.1002/jts.22320>
- Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. *Attachment & Human Development*, 7(4), 349–367. <https://doi.org/10.1080/14616730503665928>
- Stokes, H., & Brunzell, T. (2019). Professional learning in trauma informed positive education: Moving school communities from trauma affected to trauma aware. *School Leadership Review*, 14(2), 6.
- Stokes, H., & Turnbull, M. (2016). *Evaluation of the Berry Street Education Model: Trauma informed positive education enacted in mainstream schools*. University of Melbourne Graduate School of Education, Youth Research Centre. <https://bsci.dhm.io/sites/default/files/2018-05/Evaluation-of-the-Berry-Street-Education-Model.pdf>
- Stokes, H., Turnbull, M., Forster, R., & Farrelly, A. (2019). *Young people’s voices, young people’s lives: A Berry Street Education Model (BSEM) project*. University of Melbourne Graduate School of Education, Youth Research Centre. <https://bsci.dhm.io/resources/young-peoples-voices-young-peoples-lives>
- Thomas, M. S., Crosby, S., & Vanderhaar, J. (2019). Trauma-informed practices in schools across two decades: An interdisciplinary review of research. *Review of Research in Education*, 43(1), 422–452. <https://doi.org/10.3102/0091732x18821123>
- Townsend, I. M., Berger, E. P., & Reupert, A. E. (2020). Systematic review of the educational experiences of children in care: Children’s perspectives. *Children and Youth Services Review*, 111, 104835. <https://doi.org/10.1016/j.childyouth.2020.104835>
- van der Kolk, B. A. M. D. (2005). Developmental trauma disorder. *Psychiatric Annals*, 35(5), 401–408.
- van der Wegen, T. A. (2013). *Complex childhood trauma and school responses: A case study of the impact of professional development in one elementary school* (Publication Number 3598129) [Ed.D., Washington State University]. ProQuest One Academic; Social Science Premium Collection. Ann Arbor. <https://www.proquest.com/docview/1458626712?pq-origsite=gscholar&fromopenview=true>
- Wall, C. R. G. (2020). Relationship over reproach: Fostering resilience by embracing a trauma-informed approach to elementary education [Behavior Disorders & Antisocial Behavior 3230]. *Journal of Aggression, Maltreatment & Trauma*, No-Specified. <https://doi.org/10.1080/10926771.2020.1737292>

Publisher’s note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.