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Effectiveness of Trauma-Informed Care Implementation in Health Care Settings: Systematic Review of Reviews and Realist Synthesis

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Abstract

PURPOSE: Given the ubiquity of traumatic exposures and the profound impact of trauma on health, a trauma-informed care (TIC) approach in health care is critical. TIC seeks to promote safety within health care and prevent retraumatization. The lack of systems-level data has been a major barrier to TIC implementation. This study aimed to understand the mechanisms and outcomes effective in implementing TIC across health systems using a systematic review of reviews and realist synthesis.

METHODS: A systematic search of MEDLINE, Embase, PsycINFO, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Applied Social Science Index & Abstracts identified reviews addressing TIC in health care published in the last 10 years in peer-reviewed journals. Realist synthesis methodology was used to develop context-mechanism-outcome configurations. Thematic analysis was performed to generate a framework for the mechanisms of implementation that produce successful TIC outcomes.

RESULTS: Sixteen articles featuring varied review types were included. The results, highlighting the strategies that lead to improved outcomes for patients and systems, were mapped to SAMHSA's 10 TIC implementation domains, including engagement and involvement; training and workforce development; cross-sector collaboration; screening, assessment, and treatment services; governance and leadership; policy; evaluation; progress monitoring and quality assurance; financing; and physical environment.

CONCLUSION: The findings support the use of SAMHSA's 10 implementation domains in varied health care contexts to facilitate effective TIC processes. Future work should continue to evaluate the effectiveness of TIC approaches and may consider how health equity and strengths-based approaches fit within SAMHSA's framework.
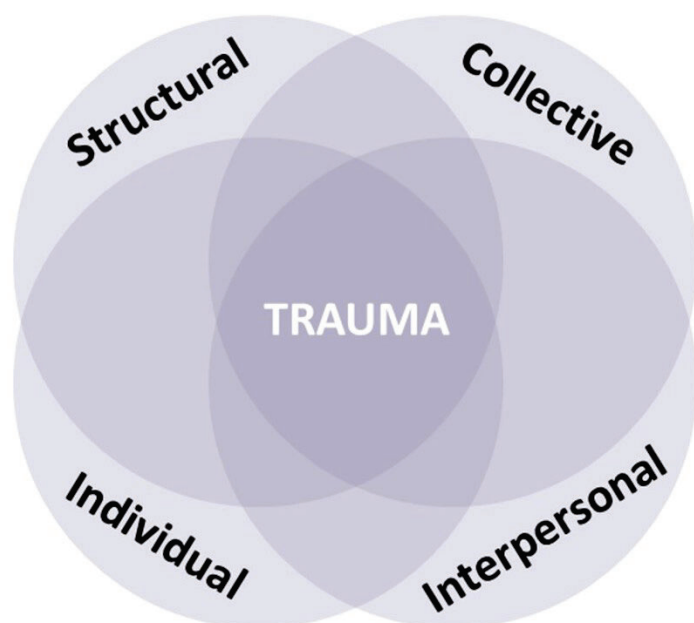
Figure 1: Intersectionality of trauma at multiple levels. © Lewis-O'Conner A, Rittenberg E, Grossman S, Levy-Carrick N 2024. Reproduced with permission. All rights reserved. Based on Ashworth et al 2023.[10]

Introduction

Trauma is a major public health concern, widely pervasive, and costly.[1,2] The Substance Abuse and Mental Health Services Administration (SAMHSA) defines trauma as "an event, series of events, or set of circumstances experienced by an individual as physically or emotionally harmful or life threatening with lasting adverse effects on the individual's functioning and mental, physical, social, emotional, or spiritual well-being."[3] Nearly 90% of adults in the United States in a national sample reported traumatic event exposures using a highly structured, self-administered survey, and exposure to multiple trauma types was common, including adverse childhood experiences (ACEs) prior to age 18 years.[4] According to the World Health Organization, 70.4% of respondents (averaging 3.2 traumas per person) across 24 countries endorsed lifetime traumas.[5] Extant research across the globe has demonstrated that adversity in childhood can lead to suboptimal physical and mental health outcomes throughout the life course.[6,7] Any experience that activates a stress response that is prolonged, severe, or chronic can be considered traumatic,[8] and trauma can be experienced at various and intersecting levels, from individual to structural (see Figure 1).[9]

Trauma-informed care (TIC) is an approach that seeks to promote safety within multiple settings, including health care. According to SAMHSA, a program, organization, or system that is trauma-informed realizes the widespread impact of trauma and understands the potential paths for recovery; recognizes the signs and symptoms of trauma in individuals, families, staff, and others involved with the system; responds by fully integrating knowledge about trauma into policies, procedures, and practices; and seeks to actively resist retraumatization.[3] The impact of trauma on health in combination with the high prevalence of traumatic exposures has inspired numerous efforts to incorporate TIC into health care practices.[6,8,11,12] A barrier to sustained progress and overall restructuring of health care systems to become trauma-informed is the lack of systems-level data to support implementation effectiveness outcomes demonstrating the acceptability, adoption, reach, fidelity, and implementation cost and sustainment of TIC across diverse health care organizations and systems.[13,14]

There is an urgent need to provide guidance to service systems about how they can beneficially address the health care needs of everyone, especially those with adverse life experiences, and respond in therapeutic and healing ways to avoid retraumatization.[15] Creating an emotionally and physically safe environment necessitates integrating TIC principles, such as safety, trustworthiness, choice, and shared decision-making into clinical care, and requires structural and cultural changes throughout all aspects of the organization, including organization-wide policies, procedures, and practices.[3] TIC promotes well-being for trauma survivors and can also have a positive impact on staff wellness,[16] skills,[17-20] and collaboration.[21,22] According to a systematic review and meta-analysis of life course health consequences attributable to ACEs, the total annual costs across North America were $748 billion, with 75% of those individuals endorsing 2 or more ACEs.[23]

Although TIC is increasingly endorsed in health care settings, there is variability in how TIC is being conceptualized and operationalized.[13] Furthermore, the integration of TIC into health systems is fraught with challenges, requiring a cultural paradigm shift and transformational organizational leadership.[15] Created in 2014, SAMHSA's 10 TIC implementation domains[24] serve as a guiding framework to assist organizations in becoming trauma-informed. These 10 domains are a tool for assessing organizational readiness and capacity for systemic change that

substantially differs from the current paradigm. Thus, the nonprescriptive style may be challenging for some organizations to determine how to fulfill the domains in a way that makes sense for their settings. Furthermore, it can be difficult to obtain buy-in from leadership and staff for the systemic changes needed to become a TIC health care organization or service system due to the paucity of evidence.[25]

To address the dearth of implementation and effectiveness data in the literature, the authors conducted a systematic review of reviews and realist synthesis to develop an explanatory model of TIC implementation across diverse health care delivery systems using SAMHSA's 10 implementation domains as the conceptual framework. Understanding strategies for TIC integration into health care using a realist synthesis offers a systematic account of contextual factors and complexities of intervention functioning and implementation.[26] Unlike traditional approaches to synthesis in systematic reviews of interventions, which are inferential (ie, assessing whether an intervention works), a realist synthesis is a more flexible approach that offers an explanatory analysis of why the intervention worked when applied in different contexts.[27]

Although TIC is based on evidence, there is some variability about what TIC entails and whether and how it results in desirable outcomes. Nonetheless, it is important to simultaneously consider factors for implementation and continue to build upon and evaluate the model. For this study, the authors defined successful implementation outcomes as those that contributed to better patient care and satisfaction, staff understanding and support, and systems change. The explanatory model identified potential causal mechanisms and their related outcomes that can guide TIC implementation by equipping knowledge users (eg, consumers, clinicians, health care administrators) and other stakeholders with a deeper understanding of integrating TIC into health care practice and organizations.

Methods

TYPES OF STUDIES INCLUDED
This systematic review of reviews had the following inclusion criteria: a review addressing trauma-informed integration into health care delivery services; published in the last 10 years (ie, January 2013 through February 2023); written in English; including full text; and published in a peer-reviewed journal. The authors included reviews focusing on TIC in health care settings, defined as any context in which health or mental health care was provided by a licensed clinician, including inpatient or outpatient services, hospitals, emergency departments, primary care, or ambulatory care. The authors excluded reviews in which a target body of evidence relating to a specific question had not been identified, a search had not been undertaken, or included studies that had not been synthesized. Reviews focusing on practices outside of the field of health care were also excluded.

SEARCH METHODS
On February 6, 2023, the authors searched 5 databases spanning the public health and social science literature using strings that included terms for both TIC and systematic reviews. Search strings originated in prior systematic reviews on TIC and included modified versions of the Centre for Reviews and Dissemination search filters for systematic reviews. Search strings are detailed in Appendix 1 (see Supplementary file 1). Databases included MEDLINE, Embase, PsycINFO, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Applied Social Science Index & Abstracts.

STUDY SELECTION
The authors exported search records to an EndNote library and deduplicated them. Two reviewers, independently and in pairs, examined titles, abstracts, and full texts for relevance and possible inclusion. Screening lists were merged to create a short list of records to be reviewed in full text. Upon exclusion at full text, reviewers recorded if studies were excluded due to a) incorrect setting, b) incorrect study design (eg, primary study or conference abstract), c) lack of TIC relevance, or d) inadequate methods (eg, no synthesis, inadequate search, no inclusion/exclusion criteria). Reviewers resolved disagreements by discussion and recourse to a third reviewer.

APPRAISAL OF INCLUDED STUDIES
Realist synthesis does not use traditional appraisal criteria, preferring instead to evaluate reviews based on relevance (ie, representative of the inclusion criteria) and rigor of quality (ie, appropriately formulated and described question, reported predefined and specified eligibility criteria, explicitly described included studies).[27] The authors used these a priori criteria to agree on scores for reviews in each domain of '++', '+' and '−', corresponding to high relevance/rigor, medium relevance/rigor, and low relevance/rigor.

SYNTHESIS

The reviewers worked individually and in groups to read the included articles and develop a set of context-mechanism-outcome configurations (CMOCs) that presented plausible explanations for findings in the included reviews. The interactions between CMOCs were examined to uncover patterns of commonality across the included reviews and to better understand the strategies that are effective in enabling TIC. At least 2 reviewers read each article to identify candidate CMOCs. Paired team members used a consensus approach to finalize CMOCs for inclusion that were then compared in an axial coding process to identify common themes. Reviewers aimed to capture multiple facets of the relevant evidence conceptualizing the state of the science for the phenomenon under investigation. Thematic analysis was used to generate an explanatory model for TIC implementation throughout diverse health care settings. In addition, the authors used SAMHSA's 10 TIC implementation domains as the conceptual framework and mapped the findings on to those domains to support the analysis.

Results

The literature search resulted in 2401 review articles with 1034 studies screened after duplicate removal (Figure 2). Of the 120 reviews retained for full-text screening, a total of 16 reviews were included in the realist synthesis. Altogether, the authors excluded 104 reviews based on incorrect setting (n = 39), lack of TIC relevance (n = 29), incorrect study design (n = 8), and inadequate methods (n = 28).

STUDY CHARACTERISTICS

The characteristics of included reviews are shown in Table 1. The 16 included studies represent a diverse array of reviews, including 7 systematic reviews, 2 scoping reviews, 2 integrative reviews, 1 realist synthesis, 1 narrative review, and 3 other types of syntheses (eg, evolutionary analysis, critical interpretive synthesis, literature synthesis). Altogether, 9 upper-middle to high-income countries were represented, including the United States, Canada, Australia, Mexico, New Zealand, the United Kingdom, Finland, and Germany. The included studies involved a wide range of health care settings, such as primary care, pediatrics, intensive care, obstetrics, oncology, emergency medicine, psychiatry, and mental health care. Four reviews focused on outpatient settings, 6 on inpatient, and 6 on a combination of both. Studies represented both patient populations (eg, trauma-exposed new mothers, physical or sexual abuse survivors, First Nations People, young people aged 12 to 15, children, and families)

and practitioner populations (eg, nurse practitioners, mental health nurses, and pediatric nurses). A total of 6 reviews focused solely on adults, 2 on adolescents, and 8 involved a general age range. Only 1 review centered on women, with all others spanning both sexes. Most reviews were published in English language between 2021 and 2023, with the exception of 2 articles that were published in 2015 and 2017.

QUALITY OF INCLUDED REVIEWS

The results for the quality assessment of included reviews are shown in Table 1. The authors rated 11 of the reviews as being of high relevance. Two reviews were rated as being of medium relevance either because of the inclusion of nonhealth contexts in the analysis[32] or because the focus was on concept analysis rather than intervention functioning, ie, why and how TIC works.[35] The remaining 3 reviews were rated as being of low relevance because they focused on clinical attitudes toward TIC[19,33] or focused more on scoping rather than synthesizing the literature.[20]

Nine reviews were rated as being of good rigor and 3 reviews were rated as being of medium rigor.[32,33] The key distinction was the richness of the synthesis methods described to generate new understanding. Four of the reviews were rated as being of low rigor,[18,20,34,35] due to a cursory description of methods,[18,34] incomplete adherence to stated inclusion criteria,[35] and inclusion of only 1 author.[20,34]

RESULTS OF SYNTHESIS

Results from the thematic analysis were mapped on to SAMHSA's 10 TIC implementation domains, highlighting improved outcomes for patients and systems. The representation of the domains featured in each of the articles is shown in Table 1. The majority of identified CMOCs were focused on engagement and involvement (10 studies),[17,18,20,22,25,29,32,33,35] training and workforce development (9 studies),[15,17–19,25,28,30,33,34] cross-sector collaboration (8 studies),[20,21,25,28–32] and screening, assessment, and treatment services (7 studies).[17,20,21,29,30,33,34] Three studies addressed governance and leadership,[17,22,32] 3 addressed policy,[15,17,32] 2 addressed evaluation,[28,30] and one each addressed progress monitoring and quality assurance[17] and financing.[17] No study addressed physical environment. Results were categorized by SAMHSA's 10 TIC implementation domains. The strategies and both their hypothesized and actual outcomes are presented below and shown in Table 2. The prominent features of each domain are also described.
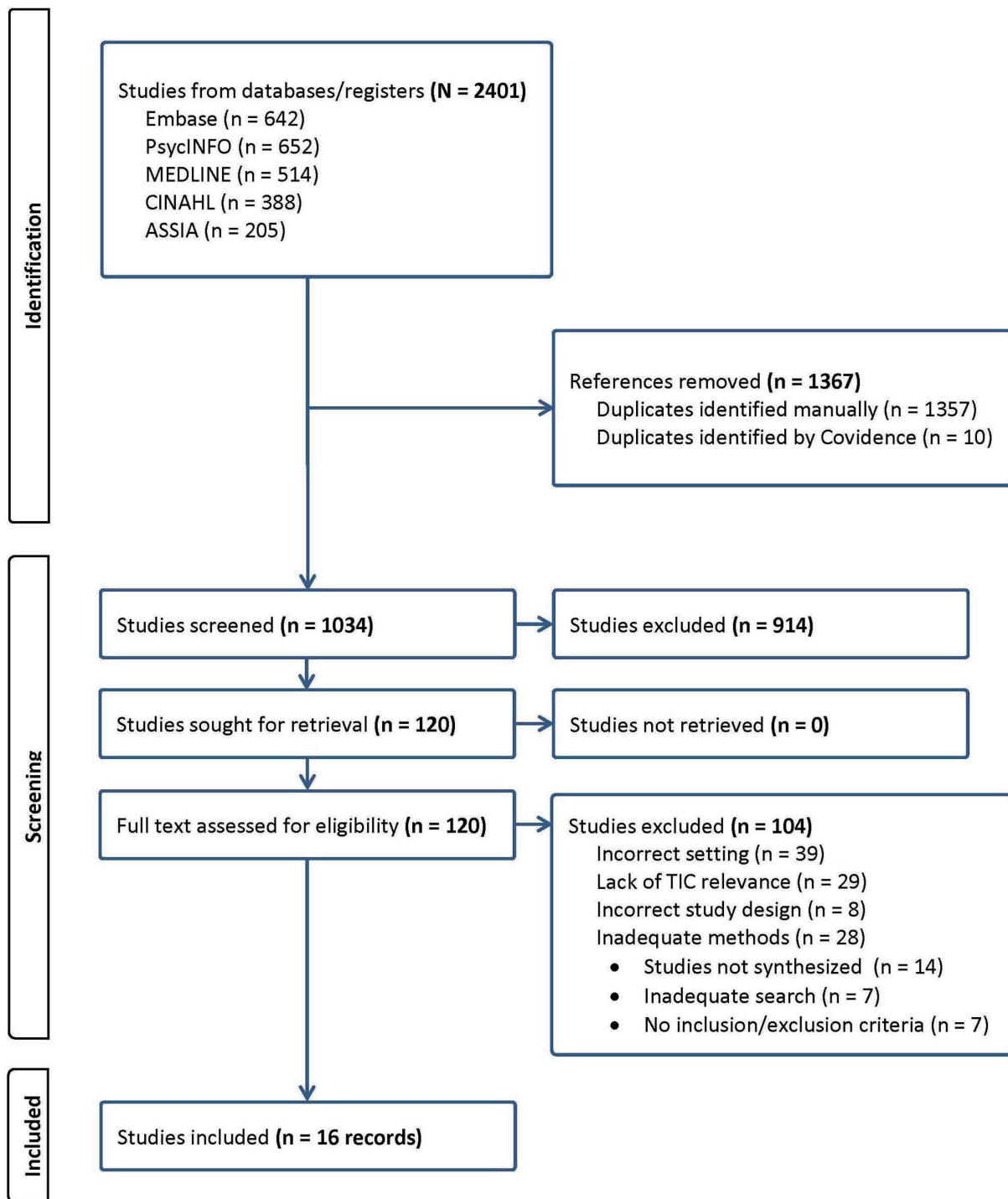
Figure 2: Preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow diagram of systematic search. Flowchart created using PRISMA design from Page MJ, McKenzie JE, Bossuyt PM et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ. 2021;372:n71. doi:10.1136/bmj.n71. 36 Creative Commons Attribution (CC BY 4.0) license (https://creativecommons.org/licenses/by/4.0/legalcode). ASSIA = Applied Social Sciences Index and Abstracts; CINAHL = Cumulative Index to Nursing and Allied Health Literature; TIC = trauma-informed care.

Author/date	Included studies	Population	Health care setting	Review type	Quality assessment of relevance/rigor	TIC 10 domains
Bargeman 2022[28]	98	General	Health care, child welfare, education, justice, social services	Critical interpretive synthesis	++ / ++	Training and workforce development; Cross-sector collaboration; Evaluation
Bendall 2021[29]	13	Young people (12–25 y)	Outpatient and counseling health care settings	Systematic review	++ / ++	Cross-sector collaboration; Engagement and involvement; Screening, assessment, and treatment services
Brown 2022[21]	10	General	Emergency department	Systematic review	++ / ++	Cross-sector collaboration; Screening, assessment, and treatment services
Bryson 2017[17]	13	Young people (12–25 y)	Inpatient psychiatric and residential treatment	Realist review	++ / ++	Training and workforce development; Engagement and involvement; Governance and leadership; Progress monitoring and quality assurance; Policy; Financing; Screening, assessment, and treatment services
Cullen 2022[30]	6	First Nations People	Primary care	Systematic review	++ / ++	Training and workforce development; Cross-sector collaboration; Evaluation; Screening, assessment, and treatment services
Davidson 2022[31]	13	General	Pediatric and adult cancer care	Scoping review	++ / ++	Cross-sector collaboration
Demers 2022[18]	Unknown	Children and families	Pediatric intensive care unit	Narrative review	++ / −	Training and workforce development; Engagement and involvement
Fernández 2023[32]	15	General	Health care, mental health, child welfare, education, juvenile justice, community partnerships, intellectual and developmental disability services	Systematic review	+ / +	Cross-sector collaboration; Engagement and involvement; Governance and leadership; Policy
Goddard 2022[33]	38	Pediatric nurses	Pediatric care	Integrative literature review	− / +	Training and workforce development; Engagement and involvement; Screening, assessment, and treatment services

Table 1: Characteristics of included studies, quality assessment, and representation of trauma-informed care domains in each article (*Continued*)

Table 1: *Continued*

Author/date	Included studies	Population	Health care setting	Review type	Quality assessment of relevance/rigor	TIC 10 domains
Huo 2023[15]	27	General	Health care organizations (eg, acute and subacute hospital services, primary care, outpatient clinics, residential mental health treatment, ambulatory care), mental health and substance use services	Systematic review	++ / ++	Training and workforce development; Policy
Lewis 2023[25]	6	General	Primary and community mental health care	Systematic review	++ / ++	Training and workforce development; Cross-sector collaboration; Engagement and involvement
Murphy 2022[34]	3	Trauma-exposed new mothers	Obstetric clinics	Systematic review	++ / −	Training and workforce development; Engagement and involvement; Screening, assessment, and treatment services
O'Dwyer 2021[22]	8	General	Acute psychiatric inpatient units	Scoping review	++ / ++	Cross-sector collaboration; Governance and leadership
Reeves 2015[20]	26	Survivors of physical or sexual abuse	Midwifery, gynecology, obstetrics, primary care, and other diverse settings (eg, physical therapy, prison health care, orthopedic nursing, HIV/AIDS care, gastroenterology, and oncology)	Synthesis review	− / −	Cross-sector collaboration; Engagement and involvement; Screening, assessment, and treatment services
Varghese 2021[35]	31	Nurse practitioners	Primary care	Evolutionary analysis	+ / −	Engagement and involvement
Wilson 2021[19]	10	Mental health nurses	Acute mental health units	Integrative literature review	− / +	Training and workforce development

Note: '++' = high relevance/rigor; '+' = medium relevance/rigor; '−' = low relevance/rigor

TIC = trauma-informed care.

ENGAGEMENT AND INVOLVEMENT

The domain of engagement and involvement actively elicits and includes service user involvement in all aspects of the organization functioning and planning levels.

Patient education

Education on parenting and peer support can increase comfort and reduce anxiety for new parents.[34] Teaching individuals about the impact of adversity on health and emphasizing that healing is possible can increase awareness of resilience strategies and promote health-enhancing behaviors.[33,34]

Patient involvement

An inclusive TIC model engages service users by welcoming and including their voice to meet their diverse needs, reduce retraumatization, and increase trust and safety in service user–staff relationships.[17,29] When members of the health care team can work in partnership with patients, care delivery is often optimized.[18,20,25]

Family-centered care

Informed and engaged care with family members/caregivers leads to increased parental satisfaction, medical understanding, confidence in care, fewer

TIC implementation domains	Strategies	Outcomes
Engagement and involvement: Actively elicits and includes service user involvement in all aspects of the organization functioning and planning levels	• Identifying what constitutes emotional and physical safety and collaborative treatment planning[29] **PI**	• Increased emotional safety within patient-staff relationships
	• Inclusion of the lived experience of patients and families and addressing their specific needs and priorities in the treatment process[17] **PI/FCC**	• Improved patient-staff relationship by engaging in meaningful inquiry with patients and allowing them to share their specific needs and preferences
	• Including patients, family members, and caretakers in care planning, service delivery, and information sharing[18] **FCC/PI**	• Improved parental satisfaction self-efficacy, perceived partnership, and confidence in care; reduced hospitalization; reduced psychiatric morbidity in patients and their caregivers after discharge from pediatric intensive care
	• Soliciting client input for policies and procedures[32] **PI**	• Improved sustained systemic efforts for TIC implementation
	• Education on parenting and peer support[34] **PE**	• Increased comfort and reduced anxiety for patients
	• Providing education and anticipatory guidance for parents and check-in phone calls[33] **PE/FCC**	• Improved emotional functioning; greater involvement in child's care; and fewer symptoms postdischarge
	• Enhancing patients' confidence in managing health conditions and self-confidence; shared decision making[25] **PI**	• Increased patient psychological readiness for disease management; control over treatment and empowerment in making choices (eg, self-efficacy)
	• Multidisciplinary and collaborative approaches between patients and practitioners in acute psychiatric inpatient unit[22] **PI**	• Improved collaborative relationships with patients and increase choice; allowed for greater flexibility and confidence in providing improved nursing care
	• Building trusting practitioner-patient relationship; recognition of and working against imbalances of power; acknowledging patients' agency and participation in care; calm response and nonjudging attitude with disclosures[20] **PI**	• Increased patients' comfort and feeling empowered to discuss traumatic experiences; improved practitioner-patient relationships promoting safety and trust
	• Fostering longitudinal practitioner-provider relationships[35] **PI**	• Increased practitioner understanding of the patient as a unique person, leading to increased sense of safety and engagement in health care services
Training and workforce development: Training for all levels of staff in the organization and incorporating TIC principles in the hiring, supervision, and evaluation of staff	• Conceptual clarity of definition of trauma and TIC[28]; and understanding drivers of trauma and violence[30] **TICC**	• Increased operationalization of a strategic plan focused on training workforce; reduced retraumatization
	• Impact of trauma on health[33] **TICC**	• Increased awareness of the need for resiliency strategies
	• Ongoing coaching, training, and supervision for staff during the change process; train-the-trainer model[17] **OR/SB**	• Reduced restraints and improved ways of intervening with patients; increased positive changes in knowledge, beliefs, and behaviors of staff; increased financial efficiencies by using a train-the-trainer model
	• Knowledge of the neurobiology of trauma and connection between fear/trauma/aggression and stress reaction[18] **TICC**	• Increased practitioner knowledge of the science of trauma and understanding of TIC by improving the provision of care and experience for patients
	• Ongoing, flexible education for all workforce; availability of experts and mentors; change agents[15] **OR/SB**	• Increased staff recognition of the prevalence of trauma exposure among their patients and the impact of their lived experience when receiving health care services
	• Promote practitioner competency; collective interprofessional collaboration; inclusion of all staff in educational activities[25] **OR/SB/TICC**	• Increased organizational readiness to provide TIC and changes in the organizational culture by improving disease management, access to services, and patient and staff safety
	• Practitioner recognition of trauma symptoms[34] **TICC**	• Increased practitioner empathy and focus on minimizing harm/retraumatization
	• Confidence in assessment, response, awareness of impact of trauma, and referral options; education and training workshops to reduce seclusions and restraints[19] **TICC**	• Enhanced therapeutic relationships (leveling power dynamics between clinicians and patients); increased understanding of how lived experience and adversity manifest as maladaptive coping (ie, compassionate exploration of behaviors rather than use of labels)

Table 2: Identified strategies and outcomes mapped on to the Substance Abuse and Mental Health Services Administration's 10 trauma-informed care implementation domains (*Continued*)

Table 2: *Continued*

TIC implementation domains	Strategies	Outcomes
Cross-sector collaboration: Interprofessional collaboration and shared governance built on a shared understanding of trauma and TIC principles	• Standardized language for TIC facilitating collaboration with referral networks and improvement of care coordination[28] **RC**	• Increase bidirectional understanding of trauma between patient and system
	• Coordinated/integrative care and collaboration with outside agencies[29]; outreach/social marketing to agencies and relevant cultural groups for referrals[32] **RC**	• Increased comprehensive and coordinated support for patients and their families and improved systemic efforts to include community resources that address the needs of diverse populations
	• Collaboration with community organizations to address social determinants of health (eg, housing instability, food insecurity, economic insecurity) and outpatient referral follow-up[21] **RC**	• Increased access and linkages to resources and services that meet the needs of patients impacted by social determinants of health
	• Embedded cultural safety within intersectoral partnerships[30] **HE**	• Increased well-coordinated responses that are culturally aligned and include multiple languages
	• Interprofessional care teams (eg, physicians, nurse practitioners, pharmacists, social workers, psychologists, registered dieticians, patient navigators, etc)[31] **ICT**	• Enhanced practitioner understanding of patient's physical and psychosocial needs and the specific roles of each member of the health care team
	• Establishing interprofessional groups for staff[21] **ISS**	• Enhanced support for staff who have been vicariously or directly exposed to trauma
	• Well-coordinated care and discussion of strategically assigned external referrals, such as counseling for trauma, mental health, and substance use[20,25] **RC/IC**	• Increased engagement in health care services; access to services; satisfaction with care, safety, and symptom reduction
Screening, assessment, and treatment services: Ensures services are evidence-based, culturally appropriate, and trauma-informed and provides referrals if trauma-informed treatment services are not available within the organization	• Effectively assessing vulnerable youth by discussing their hopes, strengths, family support, and ability to conduct a safety plan[21] **SB**	• Improved patient safety; focus on strengths and resilience
	• TIC is a strengths-based approach[30] **SB**	• Enhanced engagement of marginalized populations and a culturally competent workforce
	• Clinician input into TIC treatment planning[29] **SB**	• Increased flexible, modular approaches/evidence-based treatments and improved meeting the needs of a diverse patient population
	• Coordinating organizational change with interventions[17] **TIPC**	• Reduced rates of retraumatization and asking patient to repeat their story numerous times
	• Trauma screening in pediatric intensive care[33] **TIMP**	• Increased identification of the impact of trauma on health; access to services for patient and family
	• Clinicians who are known to patients[34] **TIMP**	• Increased feelings of safety and comfort
	• Considering the type of gowns, minimal removal of clothes, and not being hurried[20] **TIMP**	• Reduced potential trauma during medical care; building rapport and relationship, feelings of safety, voice, choice, and empowerment
Governance and leadership: Invests in TIC implementation and takes responsibility for its sustainment throughout the organization	• Senior leaders prioritize TIC (eg, allocate resources, set clear targets, communicate rationale for the initiative with staff)[17]	• Increased senior sponsorship; staff buy-in for TIC organizational change; staff satisfaction
	• Leadership support (eg, allocation of time, financial means, physical and human resources) and defined leadership presence[32]	• Improved sustainable TIC organizational change and staff satisfaction
	• Scaffolding of TIC through strong leadership, structural, practical, and policy change[22]	• Increased staff buy-in, patient satisfaction, and understanding the positive impact of TIC
Policy: Centers TIC as an essential part of the mission of an organization in written policies and protocols	• Promoting flexibility in care delivery protocols that allow for patient choice and control over their care[15,32]	• Improved satisfaction with care and engagement with care
	• Aligning policy and procedures with overarching TIC principles (eg, including TIC in mission and vision statements and visibly posting them to serve as reminders of TIC goals)[17]	• Improved systemic efforts for implementing TIC and sustainability
Evaluation: Assesses impact of TIC implementation activities	• Analyzing data regarding TIC outcomes[28] and thoughtful evaluation strategies of meaningful health and wellness indicators to evaluate programs, services, and policy[30]	• Reduced staff turnover, practitioner burnout, and compassion fatigue; increased support for evidence gaps in understanding of trauma- and violence-informed care
Progress monitoring and quality assurance: Ongoing assessment and continuous quality improvement	• Adopting a data plan that includes outcomes; prioritizing the collection and sharing of real-time data; and ongoing reviews of the resource allocation to strategies that are most effective[17]	• Increased motivation of continued improvement; promoted staff engagement and buy-in; and increased supports for implementation and sustainability

Table 2: *Continued*

TIC implementation domains	Strategies	Outcomes
Financing: Supports an organizational financial structure that provides the necessary financial resources for organization-wide implementation of TIC	• Comprehensive models for larger-scale organizational cultural changes and investment in resources, education, and leadership[17]	• Increased potential for longer-term and deeper changes to organizational culture (eg, cost-effectiveness)
Physical environment: Promotes a sense of safety in the physical environment of the organization	• None mentioned in the included reviews	• None mentioned in the included reviews

Note: Abbreviations of the subthemes identified above in **bold**.

Definitions are based on SAMHSA's 10 Implementation Domains.

FCC = family-centered care; HE = health equity; IC = integrative care; ICT = interdisciplinary care team; ISS = interprofessional staff support; OR/SB = organizational readiness/staff buy-in; PE = patient education; PI = patient involvement; RC = referral coordination; SAMHSA = Substance Abuse and Mental Health Services Administration; SB = strengths-based; TIC = trauma-informed care; TICC = trauma-informed clinician competency; TIMP = trauma-informed medical procedures; TIPC = trauma-informed principled care.

behavioral and withdrawal symptoms in patients, and reduced psychiatric morbidity (ie, anxiety) in their caregivers after discharge, and can foster reductions in costs and hospitalizations (ie, decrease length of stay and readmission) in pediatric care settings.[18,33] Strategies for increasing engagement with families include information sharing, increased education and anticipatory guidance, check-in phone calls, and inclusion of family members in care planning.[18]

TRAINING AND WORKFORCE DEVELOPMENT
The domain of training and workforce development provides training for all levels of staff in the organization and incorporates TIC principles in the hiring, supervision, and evaluation of staff.

Trauma-informed clinician competency
Clinicians who are competent and include TIC practices throughout assessment and treatment when performing trauma inquiry and other risk assessments (eg, being aware of trauma's impact on health, being able to identify symptoms, eliciting strengths/hopes and existing supports, and being knowledgeable about acceptable interventions and referral options) are more likely to make a correct diagnosis and co-develop an effective treatment plan with patients. Such approaches support patients in general and especially during times of stress and dysregulation by helping to increase understanding of adversity and, thus, improve the therapeutic relationship, decrease stigmatization, and enhance healing and recovery.[18–21] Knowledge of the neurobiology of trauma and the

connection between fear, trauma, and physical and emotional symptoms increases clinician knowledge, confidence, and the use of TIC.[18] Interprofessional education topics include the psychology of trauma, connection between trauma and behavior/health outcomes, prevalence of trauma among patients served, and vicarious trauma. Trainings should be experiential, not solely didactic, focusing on improved skill building and applicability in real situations and in daily practice.[19]

Organizational readiness/staff buy-in
Staff training can lead to increased knowledge of the need for TIC and, thus, facilitate and promote staff buy-in for organizational change.[15,17,25,28,30] Conceptual clarity and definitions of TIC and trauma can improve the operationalization and implementation of TIC into health care delivery.[28] For example, promoting practitioner awareness can improve organizational readiness to provide TIC.[25] Training that is targeted to staff across all levels of the organization and is delivered with a flexible format can produce changes in the organizational culture that can lead to sustainable change.[15,25] Key strategies for promoting staff buy-in include identifying change agents (eg, key stakeholders) among the staff. TIC education imparts recognition that there is a high prevalence of trauma among patients as well as staff and awareness of the impact of these experiences for those receiving care as well as those delivering care.[15] A train-the-trainer model is economical and can generate longer-term change in the organization.[17] The importance of staff members feeling supported throughout the change process with

appropriate training and ongoing coaching and supervision to reinforce training increases the ability of staff to be more effective and makes sustainability more likely.

CROSS-SECTOR COLLABORATION

The domain of cross-sector collaboration promotes interprofessional collaboration and shared governance built on a shared understanding of trauma that reflects the TIC principles.

Health equity

Prioritizing an equity-oriented, trauma-informed framework can help build trusting relationships between the workforce and families, as well as meaningful community partnerships.[30] Furthermore, embedding cultural safety within intersectoral service partnerships can ensure better coordinated care.

Referral coordination

Cross-sectoral partnerships and established referral networks both within and across systems of care can foster mutual understanding and support for the patients and systems affected by trauma.[28] Referrals within an organization and to external and community organizations are critical for smooth transitions and provide opportunities to address social determinants of health along with needs for physical and/or mental health specialty care.[22] Discerning when and to whom to make referrals helps optimally address presenting problems and their roots, promotes engagement in health services, minimizes the distress associated with unfamiliar environments, and provides greater access and linkages to resources and services that especially meet the needs of underserved and vulnerable populations and enhance health care for all patients.[20,21,25,32]

Interdisciplinary care team

Interprofessional health care teams equipped with physicians, nurse practitioners, physician assistants, pharmacists, social workers, psychologists, registered dietitians, patient navigators, and others work together to provide a more comprehensive understanding of a patient's condition by sharing perspectives from their respective disciplines, which can help to improve practitioners' overall understanding of patients' psychosocial and health needs, enhance trust between the patient and practitioners, and maximize patient safety and quality of life.[31]

Integrated care

Health care practitioners and mental health clinicians work together to provide integrated care that can improve patient health outcomes by addressing the impact of trauma on mental and physical health.[21,25] For example, a good working relationship between the emergency department and behavioral health department facilitates change of the culture through staff understanding of TIC.

Interprofessional staff support

Intentionally designing and establishing interprofessional groups (eg, members of chaplaincy, occupational and physical health, nursing leadership, psychiatry, psychology, and social services) to provide support to staff who might have been affected by a traumatic event can help to mitigate compassion fatigue, burnout, and secondary traumatization.[21]

SCREENING, ASSESSMENT, AND TREATMENT SERVICES

The domain of screening, assessment, and treatment services ensures services are evidence-based, culturally appropriate, and trauma-informed and provides referrals if trauma-informed treatment services are not available within the organization.

Trauma-informed medical procedures

Clinicians who are known to patients can help them feel safe and comfortable.[34] Minimizing the potential for retraumatization may be achieved by being flexible and allowing patients to pace the encounter as much as possible.[20] As an example of flexibility, considering the type of gowns used and requiring minimal removal of clothing can help build rapport and relationships with patients that instill a feeling of safety.

Strengths-based approach

Delivering TIC is a strengths-based approach, which is a method that focuses on abilities, knowledge, and capacities rather than deficits.[30] This approach can lead to the broad engagement of patients, especially those in marginalized populations, and can also promote a culturally competent workforce. Using a strengths-based approach is adaptable and can support resilience for patients and health care workers.

Trauma-informed principled care

Aligning TIC principles with service delivery and treatment interventions can improve interactions between patients and staff by minimizing retraumatization and reducing the number of times a patient has to tell their story.[17] An inclusive TIC model that promotes clinician input during planning phases can lead to the selection of flexible, modular approaches and evidence-based treatments that increase the ability to meet the needs of patients with heterogeneous symptom presentations.[29] Additionally, therapeutic interventions that extend beyond trauma-specific approaches can provide more comprehensive support for consumers (ie, coordinated/integrative care).

GOVERNANCE AND LEADERSHIP

The governance and leadership domain invests in TIC implementation and takes responsibility for its sustainment throughout the organization. Staff understand that TIC is a priority when leaders demonstrate their explicit commitment, and especially through the allocation of resources, which can lead to sustained change in organizational culture[17,32] (eg, multiple leaders serving in key roles and modeling TIC practices in the workplace). A clearly defined leadership endorsement to facilitate resources, allocation of time, and the provision of financial and other needed resources can enhance sustainable organizational change.[17,32] Other strategies at the leadership level are to establish a trauma task force or steering committee, set clear targets, communicate the rationale for the initiative with staff, articulate "an unwavering belief" that TIC goals are achievable, and include TIC as a standing item at high level meetings. Scaffolding of TIC through strong leadership and subsequent structural, practical, and policy changes can lead to balancing organizational pressures to follow safety and risk protocols and sharing power to bring about a cultural change.[22]

POLICY

The policy domain highlights TIC as an essential part of the mission of an organization in written policies and protocols. Aligning policy and procedures with the overarching principles of trauma-informed practice can lead to improved systemic efforts, such as prioritizing client input and reducing retraumatization.[15,17,32] Flexibility is a key facilitating factor for implementation, including a flexible work environment, protocols, and training curriculum that are supportive to staff, whereas promoting choice and control over care for service users assures that procedural policies of a sensitive nature are guided by TIC principles.[15]

EVALUATION

The evaluation domain ensures appropriate measures for assessing the impact of TIC implementation initiatives and activities throughout an organization. Thoughtful evaluation strategies of meaningful health and wellness indicators can result in improved outcomes for service providers (eg, staff retention and practitioner burnout), service users (eg, patient health outcomes), and the service system (eg, cost savings).[28,30] Specific strategies include conducting posttraining TIC evaluation of changes in staff knowledge, beliefs, and behavior. Additionally, robust evaluation of policies, programs, and services can begin to fill the evidence gaps in the understanding of TIC, particularly for marginalized and historically vulnerable patient populations.[30]

PROGRESS MONITORING AND QUALITY ASSURANCE

Progress monitoring and quality assurance involves an ongoing assessment and continuous quality improvement throughout an organization. Routinely sharing real-time data with staff can motivate continued improvement, monitor progress, and inform practice.[17] For example, an ongoing review of resource allocation to the most effective strategies can promote staff engagement and buy-in. Organizational completion of a strength and needs self-assessment can assist in strategic planning for guiding priorities, monitoring change, and tracking effectiveness over time.

FINANCING

The financing domain supports an organizational financial structure that provides the necessary financial resources for organization-wide implementation of TIC. Using comprehensive models for larger-scale organizational cultural changes requiring more resources upfront can create longer-term and "deeper" changes to organizational culture that can result in cost savings (eg, increased cost-effectiveness, decreased staff turnover, and improved health care utilization).[17]

PHYSICAL ENVIRONMENT

This physical environment domain promotes a sense of safety in the physical environment of the organization. A trauma-informed environment is a healing space that is intentionally designed to reflect TIC principles and facilitate emotional well-being. None

of the included articles mentioned TIC-related outcomes associated with the physical environment.

Discussion

The aim of this realist synthesis was to understand the mechanisms and outcomes effective in implementing TIC across diverse health systems. Once these pathways are identified, an organization can select the strategies that are best suited for their setting to implement TIC and sustain its progress. The ensuing discussion expands upon features of what a sustainable TIC implementation entails, with an emphasis on policy, education, and research.

POLICY
Widespread TIC implementation requires institutional policies and procedures that solicit staff, practitioner, and consumer input. To achieve a full appreciation of the impact trauma-informed approaches can have throughout an organization, strategic leaders need to create standardized policies to inform the change process.[36] The endorsement and sponsorship of senior leadership is integral to the success, adoption, and sustainability of any new initiative.[17] TIC policies that are integrated into a strategic plan that designates sustained financing and the allocation of resources to the initiative, as well as identifies and evaluates metrics that will capture the impact of TIC implementation throughout the organization, have an increased likelihood for success.[17,37] Promoting patient engagement for the purpose of informing organizational policy is essential and informative to the process.[29,32] Leadership efforts that align with organizational goals and inform policies that address trauma-informed approaches can endorse these efforts and ensure that adequate resources have been included in the budget process. Research has shown the cost-savings impact of TIC approaches[38,39]; therefore, initial investment may result in a sustained return.

EDUCATION
Our results underscore that investing in workforce development by providing ongoing staff education that enhances skills and improves knowledge related to the impact of trauma on health is fundamental to the successful integration of TIC throughout an organization. Staff buy-in and motivation are essential for change.[17,21,25] Sustained TIC changes can be realized through education targeted to all levels of the workforce, including administrative staff, clinical practitioners, and clinical staff (eg, receptionists,

security personnel, community health workers).[25] In addition, tailoring training to specific staff is important. For example, education that focuses on assessment and treatment of traumatic experiences is a skill set that all clinicians would find beneficial.[33] Clinicians who lack education on TIC may potentially misinterpret patient symptoms and behavior. Organizational and individual-level assessment of TIC knowledge can be a starting point,[40] as well as the use of expert guidance in educational initiatives, such as the validated trauma-informed competencies for undergraduate medical education.[41]

RESEARCH
The field of TIC is evolving, yet there is a keen recognition that research efforts must be upscaled to invest in evaluation of TIC implementation.[17,28,30] There is broad agreement among clinicians, academicians, and researchers that the lack of outcomes research on TIC is one of the major impediments to implementation.[15,25] For example, Stillerman and colleagues captured the gaps of evidence to support TIC in hospital care and discussed initiatives to foster growth in the field.[13] This commentary identified the limitation of the existing evidence, variability in the way TIC is conceptualized and operationalized, and notable omission of data that support the return on investment when TIC models are employed. In 2018, SAMHSA's Interagency Task Force on Trauma-Informed Care was established to collate existing evidence, develop best practices, and make recommendations for ways federal agencies can better support and coordinate their response to families impacted by trauma.[42] Future research should continue to evaluate the critical elements of TIC for effectiveness and the optimal sequencing of implementation. Emphasis should also be given to understanding ideal outcomes for TIC sustainment.

FUTURE DIRECTIONS
Although SAMHSA's 10 implementation domains provide a solid framework for health care organizations seeking to become trauma informed, these results point to several noteworthy additions. The field of adversity and trauma has shifted its focus toward a strengths-based model that leads with the importance of positive childhood and adult experiences.[43,44] This shift requires upholding the TIC principles organization-wide while simultaneously recognizing the impact of traumatic experiences and incorporating the profound influences of positivity. Policy, practice, and education efforts should include a focus on positive experiences, such as an individual's strengths, resilience, and empowerment.

Additionally, acknowledging past and present-day traumatic exposure among staff is key. Leaders in health care are instrumental in assuring the well-being of all staff (clinical and non-clinical), and using a trauma-informed framework can assist in creating a healthy functioning workforce.[45,46]

This synthesis revealed that limited evidence, application of foundational science, and lack of funding for TIC have not been fully addressed.[17,30] Efforts to implement TIC must proactively include a research agenda that addresses the impact of TIC has on the well-being of staff,[28] in addition to process outcomes, implementation evaluation, health outcomes, and health care utilization. Furthermore, TIC is an approach rooted in health equity and addressing cultural and historical root causes of trauma.[47] To be truly trauma-informed, an organization needs to recognize the disproportionate impact of traumatic exposures among vulnerable and marginalized populations, and that poverty and discrimination are also traumatic experiences. Accordingly, policy, education, clinical practice, and research that focus on promoting successful TIC implementation must simultaneously incorporate a rigorous sustainability plan. Health equity initiatives are complementary with and act in synergism with TIC initiatives, and when executed in tandem, can contribute to a healthy and thriving environment for patients, their loved ones, and staff.

LIMITATIONS
Realist synthesis is an inductive method and, thus, a different team of reviewers may have arrived at a different set of CMOCs. In addition, the authors' search was highly sensitive, but may have missed reviews using different terms for TIC that are nonstandard or otherwise not clearly indexed. The appraisal criteria also identified articles across a range of relevance and rigor. Although the authors are confident that the findings are robust to the inclusion of these reviews, it is possible that a consistently high-quality evidence base may have addressed some of the areas that the authors were less able to include in the analysis. Finally, the authors were unable to consult on the findings with wider policy and practice communities, such as the Interagency Task Force on Trauma-Informed Care, as is often recommended for realist syntheses.

Conclusion

The authors highlighted TIC approaches across sectors of policy, education, and research that are critical to the success of using the SAMSHA's 10 TIC domains as an implementation framework. Findings demonstrated concrete examples of TIC implementation strategies that resulted in improved outcomes for patients and systems. However, TIC is an emerging field that will require substantially more studies to create an evidence base for TIC implementation in health care. Successful integration of TIC will require the support and commitment of senior leadership and the infusion of TIC principles throughout organizational policies and procedures. Sustained implementation, ongoing evaluation, and progress monitoring necessitate financial and policy support from government, business, and philanthropy to make it feasible for health care leaders to implement TIC in their organizations. It is imperative to proactively develop a research agenda that is inclusive of short- and long-term goals and evaluates the effectiveness of TIC approaches in health care to further the evidence needed to garner the momentum for TIC implementation.

Supplementary Materials
Supplemental material is available at: https://www.thepermanentejournal.org/doi/10.7812/TPP/23.127#supplementary-materials.

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