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ORIGINAL RESEARCH

The Practice of Emergency Medicine

Factors that influence interprofessional implementation of trauma-informed care in the emergency department

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Abstract

Background: To describe factors that influence interprofessional staff decisions and ability to implement trauma-informed care (TIC) in a level-one emergency department (ED) trauma center.

Methods: This qualitative research study consisted of semi-structured interviews and quantitative surveys that were conducted between March and December 2020 at an urban trauma center. Eligible participants were staff working in the ED. Interview questions were developed using the Theoretical Domains Framework (TDF), which is designed to identify influences on health professional behavior related to implementation of evidence-based recommendations. Interview responses were transcribed, coded using Atlas software, and analyzed using thematic analysis.

Results: Key themes identified included awareness of TIC principles, impact of TIC on staff and patients, and experiences of bias. Participants identified opportunities to improve care for patients with a trauma history, including staff training, more time with patients, and efforts to decrease bias toward patients. Most participants (85.7%) felt that a TIC plan, tiered trauma inquiry, and warm handovers would be easy or very easy to implement.

Conclusion: We identified key interprofessional staff beliefs and attitudes that influence implementation of TIC in the ED. These factors represent potential individual,

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team-based, and organizational targets for behavior change interventions to improve staff response to patient trauma and to address secondary trauma experienced by ED staff.

KEYWORDS
emergency department staff, interdisciplinary teams, re-traumatization, trauma, trauma-informed care

1 | INTRODUCTION

1.1 | Background

Traumatic experiences present a crucial challenge to emergency medicine because trauma has been shown to negatively impact health, influence how patients engage in health care, and affect the well-being and safety of emergency department (ED) staff. Trauma is defined as experiences, on levels ranging from individual to collective, that cause physical, emotional, or life-threatening harm and have long-lasting impacts on health and well-being.[1] In childhood, exposure to trauma has a dose-response association with chronic conditions including cardiovascular disease, type 2 diabetes, and psychiatric disorders.[2–4] Trauma disproportionately impacts people of color and those with low-socioeconomic status (SES) and contributes to health inequities.[5–10] In the ED, trauma is often understood to consist of physical injuries, such as stabbings or gunshot wounds, whereas emotional, social, and structural traumas may be overlooked.[1,11]

The ED setting, with its sensory overload and perceived loss of privacy and control, can be a difficult environment for patients with a history of trauma. The resulting retraumatization can lead to behaviors rooted in a trauma response, such as patients being "combative" or labeled as "difficult."[12] A trauma-informed approach can allow ED staff to recognize these trauma responses and effectively help patients to de-escalate and engage in care. In addition to providing effective tools to care for patients, trauma-informed approaches are crucial for the well-being of ED staff members, who frequently experience both direct and secondary (vicarious) trauma.[13–15]

Trauma-informed care (TIC) offers an approach and guiding principles that recognizes and mitigates the impact of trauma on health and promotes engagement in health care, and strengthens the well-being of health care staff (Figure 1). The 4R's of TIC include: realizing how widespread trauma is and understanding paths for recovery; recognizing the signs and symptoms of trauma in patients and staff; responding using the guiding principles of TIC; and awareness of policies and procedures that may result in retraumatizing an individual.

1.2 | Importance

TIC strategies and their benefits have been well described[10]; however, operationalization in health care settings has lagged.[16–20] The Theoretical Domains Framework (TDF) was developed to investigate implementation challenges in health care settings and provides a framework to identify potential behavior change interventions that could overcome these implementation barriers.[21] The COM-B model is a simpler understanding that capability, opportunity, and motivation act together to influence behavior that can be used in combination with the TDF (Figure 2).

1.3 | Goals of this investigation

Using the TDF and COM-B frameworks, we conducted this study to gain an in-depth understanding of the dynamic, complex interpersonal and environmental factors that impact staff's acceptance and understanding of TIC. Through this understanding, we aimed to describe the factors that influence interprofessional ED staff's understanding and acceptance of TIC, including 3 potential trauma-informed strategies: TIC plan, tiered trauma inquiry, and warm handovers.

2 | METHODS

2.1 | Study design

To explore the range of factors that could influence staff feasibility and acceptability of TIC implementation, we used a qualitative study design consisting of likert scaled survey questions and semi-structured interviews. This approach followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting guideline as well as the Standards for Reporting Qualitative Research (SRQR) guideline.[22]

2.2 | Setting

This study was conducted at an academic level I trauma center in Boston, Massachusetts. This study was approved by the institutional review board.

2.3 | Selection of participants

Eligibility criteria included English-speaking staff who primarily work in patient-facing roles in the ED, including physicians, nurses, social

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workers, security officers, medical assistants, domestic violence advocates, community health workers, and ultrasound technicians (Table 1). We actively recruited participants from December 2019 through March 2020 via purposive sampling with input from the ED leadership team to obtain a diverse range of interprofessional ED staff. Investigators emailed potential participants and assessed eligibility through a phone screening. Participants were recruited until thematic saturation was reached, resulting in 22 interviews.[23]

2.4 | Study procedures

Surveys and semi-structured interviews were conducted between March and December 2020. All participants provided verbal informed consent. There was no financial compensation provided to participants. Surveys and interviews were conducted using video-conferencing due to the onset of the COVID-19 pandemic. Participants were given a list of potential risks of the study process and informed they could skip any question or end the interview at any point. All interviews were de-identified, recorded via an encrypted digital audio recorder, and stored on password protected computers.

Participants were asked to complete a short survey before the interview (Supporting Information Appendix S1). The survey answers were briefly referenced during the semi-structured interview (Supporting Information Appendix S2) assessed factors that would influence staff's ability and willingness to implement TIC in the ED, including topics of prior knowledge and experience with TICs. The more granular questions aligned with our TDF Framework (Supporting Information Appendix S3) and explored specific aspects of behavior and implementation, whereas the COM-B, a model that understands behavior as a sum of opportunity, motivation, and capability, allowed simplified understanding of the results.

The semi-structured interview guide (Supporting Information Appendix S2) was developed by the research team (A.L.O., E.R., N.L.C., S.G., H.S., J.L., S.B.) using the Theoretical Domains Framework (Supporting Information Appendix S3).[21]

To explore potential TIC interventions that could be implemented the ED, the research team used a participatory approach, meeting with ED patient advisors, Coordinated Approach to Resilience and Empowerment Clinic patient advisors, and ED leadership. Based on these discussions and review of the literature, the research team selected 3 potential trauma-informed interventions that could be further explored in the semi-structured interviews. Participants were asked to rank their acceptance of these 3 interventions using a Likert scale. The interventions were as follows: warm handovers, broad trauma-tiered inquiry, and TIC plans. A warm handover is a transfer of care between members of the health care team that occurs in front of the patient and/or their support individuals; it allows the patient to hear what is said, clarify or correct information, and ask questions about their care.[24] Broad trauma-tiered inquiry is a discussion between patients and providers that elicits a trauma history using a humanistic approach.[25] A TIC plan is a document in the electronic

health record (EHR) that is, developed with patients; it documents the patient's strengths, ways of coping, triggers, prior health care experiences, and any relevant trauma history that the patient feels is important to share with the care team.

Five members of the research team developed the interview questions through an iterative process until consensus was achieved. Questions were categorized by TDF domains within a broader behavioral science framework of COM-B influences on behavior by opportunity, motivation, and capability. The interviews began with an open-ended question within each TDF domain, followed by a series of questions to probe more deeply into the target behavior. Participants were provided definitions and examples of each of the three potential TIC interventions.

2.5 | Data analysis

We summarized participants' characteristics with proportions and percentages for categorical variables. Each interview was considered one unit of analysis and was transcribed verbatim using TranscribeMe software. Coding and analysis were conducted using qualitative analysis software, ATLAS.ti. To mitigate bias and enhance reflexivity, initial coding of transcripts was completed by two independent team members using an inductive approach. These inductive open codes were then combined into preliminary themes for the larger team (A.L.O., E.R., S.G., N.L.C., H.S.), which through regular meetings and discussion, we verified codes and discussed resolution of discrepancies and confirmation of final themes [26,27] Data saturation was determined when no new additional data were being identified.

The survey questions regarding working in the ED and current TIC practices were analyzed, and percentages of responses were reported (Supporting Information Appendix S4). Last, we analyzed the survey responses about proposed TIC interventions and ease of implementation (Supporting Information Appendix S5). Data analysis was performed from March to December 2021.

3 | RESULTS

Of the 22 participants, 17 identified as women and 13 as White (Table 1). Most participants were 30–39 years old. Staff roles

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The Bottom Line

Trauma informed care (TIC) can aid in recognition and engagement of vulnerable patients. A survey indicated that 86% of emergency department (ED) staff felt that TIC could be incorporated into daily ED care to improve both patient and staff experience.

Safety: Physical & psychological	Trustworthiness & transparency	Peer Support	Collaboration & Mutuality	Empowerment, Voice, Choice	Cultural, Historical, & Gender Acknowledgment

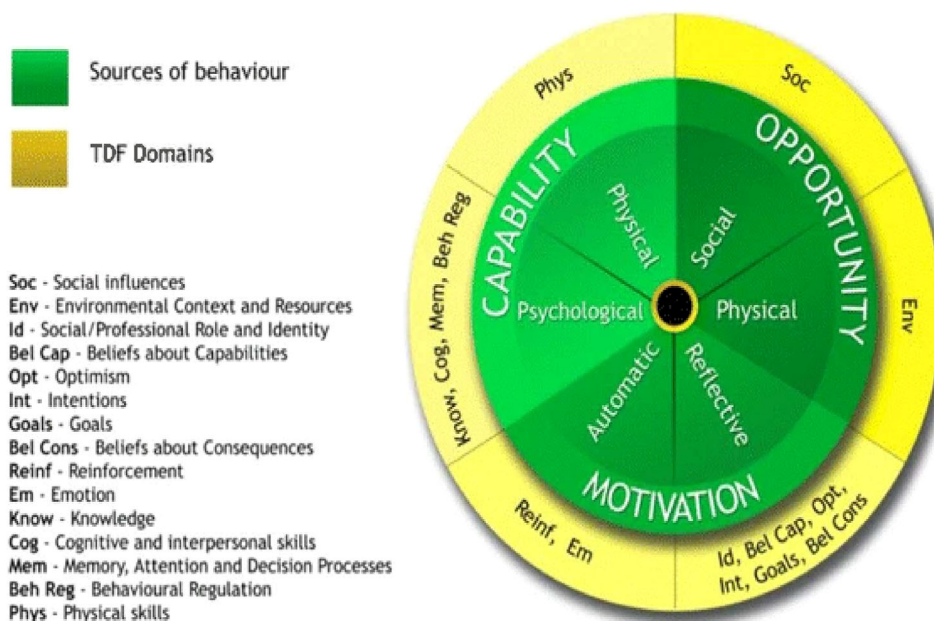**FIGURE 1** The 6 principles of trauma-informed care.

FIGURE 2 Theoretical Domains Framework (TDF) and behavioral change wheel. Reproduced from Atkins et al,[21] under the Creative Commons Attribution 4.0 International License (http://creativecommons.org/licenses/by/4.0). No changes to the original figure were made. COM-B sources of behavior are also shown, demonstrating how the TDF can be linked with this more simplified model.

included 7 physicians, 4 nurses, 3 social workers, 2 emergency service assistants, 2 security officers, 1 physician assistant, 1 ultrasound technician, 1 community health worker, and 1 domestic violence advocate.

3.1 | Survey results

3.1.1 | Participant survey responses: perceived frequency of factors that influence TIC implementation

Figure 3 demonstrates survey responses on perceived frequency of factors that influence staff implementation of TIC in the ED. Respondents reported frequently (40.9%) or usually (27.3%) feeling supported in the ED by other staff, and frequently (22.7%) or usually (27.3%) enjoying their work in the ED over the past week. Most participants (59.1%) stated that patients who have experienced trauma frequently or usually receive high quality care in the ED. Respondents reported

feeling confident that they usually (22.7%), frequently (40.9%), or sometimes (31.8%) can positively affect the experience of a patient in the ED who has experienced trauma. Most participants reported addressing the emotional or behavioral distress that patients may experience, either every time (22.7%), usually (18.2%), or frequently (36.4%).

3.1.2 | Agreement with factors that influence TIC implementation

Figure 4 demonstrates survey responses evaluating participant agreement with factors that influence staff implementation of TIC in the ED. Almost all participants agreed or strongly agreed (95.5%) they were optimistic that further TIC education and protocols would improve care for patients who have experienced trauma. Overall participants agreed or strongly agreed (100%) they were open to using TIC protocols, but with less certainty about other team members openness to TIC (31% somewhat agreeing).

TABLE 1 Characteristics of study participants.

Characteristic	No. (% of total responses)
Gender[a]	
Women	17 (77.3)
Men	4 (18.2)
Prefer not to say	1 (4.5)
Race	
Asian/Pacific Islander	2 (9.1)
Black/African American	6 (27.3)
Latin X/Hispanic	2 (9.1)
Native American/Indigenous	1 (4.5)
White	13 (59.1)
Age, years	
21–29	5 (22.7)
30–39	9 (40.9)
40–49	4 (18.2)
50–59	2 (9.1)
60 or older	2 (9.1)
Role/position	
Physician	7 (31.8)
Nurse	4 (18.1)
Social worker	3 (13.6)
Emergency services assistant	2 (9.1)
Security officer	2 (9.1)
Ultrasound technician	1 (4.5)
Domestic violence advocate	1 (4.5)
Community health worker	1 (4.5)
Physician assistant	1 (4.5)

[a]Participants self-identified their gender.

3.1.3 | Perceived difficulty of TIC interventions

Respondents were asked to rank the difficulty of implementing three potential TIC strategies (Figure 5). Eighteen participants (85.7%) felt a trauma-informed acute care plan would be easy or very easy to implement in the ED. Fewer participants felt that trauma tiered inquiry (11 [52.3%]) and warm handovers (10 [47.6%]) would be easy or very easy to implement in the ED.

3.1.4 | Perspectives on TIC training

Ten participants reported minimal (7, 31.8%) to no (3, 13.6%) prior training on TIC, 6 (27.3%) reported some prior training, and 6 participants reported significant (4, 18.2%) to very significant (2, 9.1%) prior training on TIC. Nineteen participants reported that ED staff training

on TIC is either very important (13, 59.1%) or extremely important (6, 27.3%).

3.1.5 | Thematic analysis

Key themes emerging from participant interviews were categorized according to the COM-B behavioral change framework and TDF domains (Figure 2). Six key themes emerged describing factors that influence staff decisions to accept/use TIC in the ED: self-reported capability, environmental facilitators of change, environmental barriers to change, opportunities for change, and experiences of and witnessing implicit and explicit bias (Table 2).

3.1.6 | Awareness of TIC principles

Within the knowledge TDF domain, awareness of TIC principles emerged as a key theme. Participants reported familiarity with TIC principles and awareness of TIC strategies.

3.1.7 | Facilitators of staff emotional and psychological safety

Within the TDF domain environmental context and resources, facilitators of emotional and psychological safety emerged as a key theme. Participants described several facilitators to managing traumatic and other psychologically and emotionally challenging situations in the ED. For example, participants reported they debrief difficult cases with the care team, which promotes an opportunity to process together. Some also reported that team camaraderie and supportive leadership facilitated a safer and healthier work environment. Several participants were unable to name facilitators of emotional safety in their workplace.

3.1.8 | Barriers to staff emotional and psychological safety

Barriers to staff emotional and psychological safety emerged as a theme under the TDF domain of environmental context and resources. Key subthemes included the desire for more support sessions and debriefs to improve employee physical, psychological, and emotional safety. Other barriers mentioned that did not reach saturation included poor sleep patterns due to shift work and lack of staff diversity (race and ethnicity).

3.1.9 | Opportunities to improve trauma patient experiences

Within the TDF domain environmental context and resources, participants identified staff training, increased time with patients, and efforts
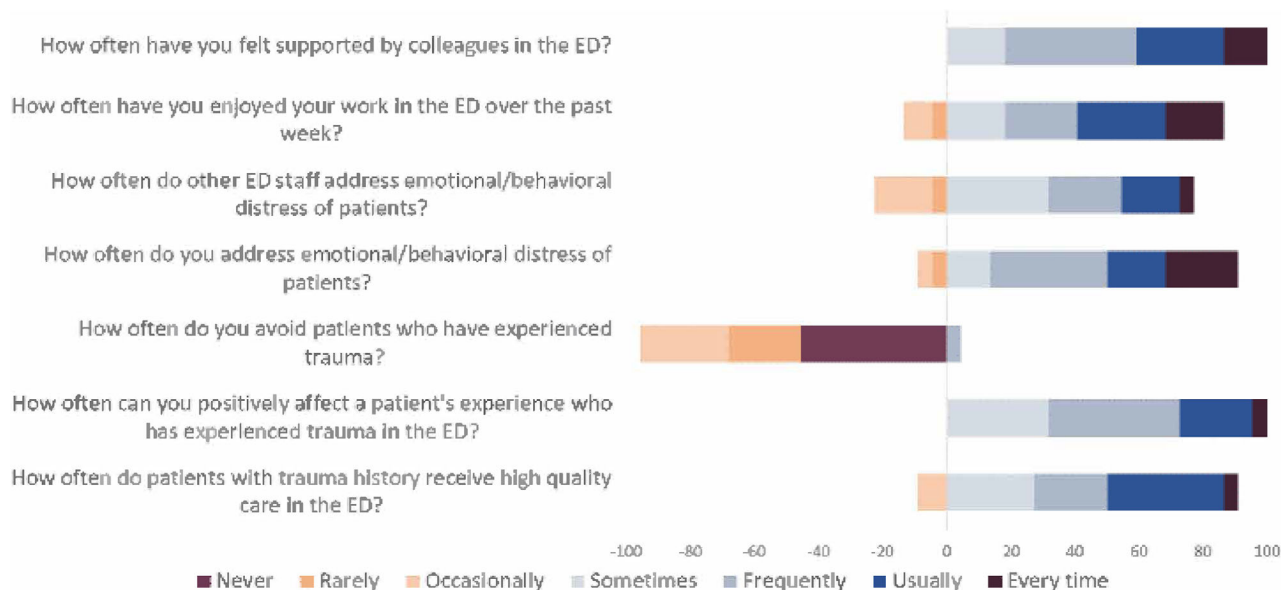
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FIGURE 3 Participant survey responses on perceived frequency of factors that influence decisions to implement trauma-informed care in the emergency department.
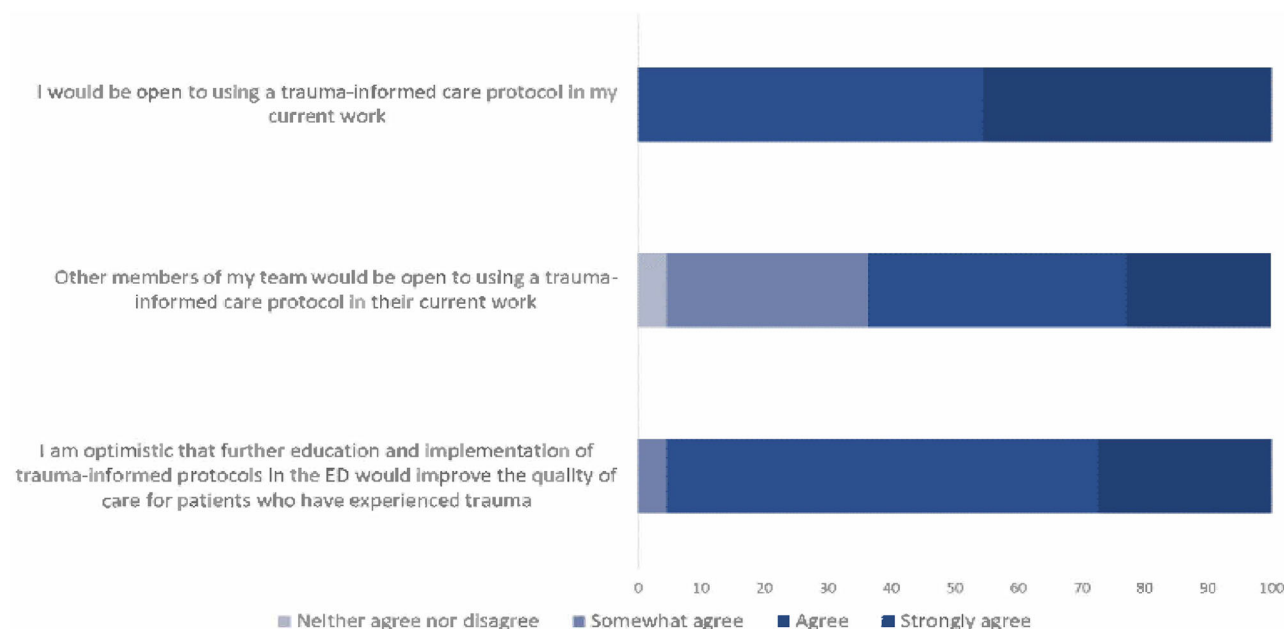

FIGURE 4 Participant survey responses on perceived agreement with factors that influence implementation of trauma-informed care in the emergency department.

to decrease discrimination toward patients as key opportunities to enhance experiences for patients with histories of trauma. Most shared that although they provided excellent care to patients with acute physical traumas, they could do better with patients who have experienced past traumas including patients who are often stigmatized, that is, obesity, substance use disorder, mental health, and non-English speaking patients.

3.1.10 | Experiences of bias

Experiences of bias were categorized under the TDF domain of social influences. Participants reported witnessing or experiencing both implicit and explicit bias in multiple scenarios, including staff-to-staff, patient-toward-staff, and staff-toward-patient interactions. Staff reported witnessing episodes of homophobia, transphobia, sexism,
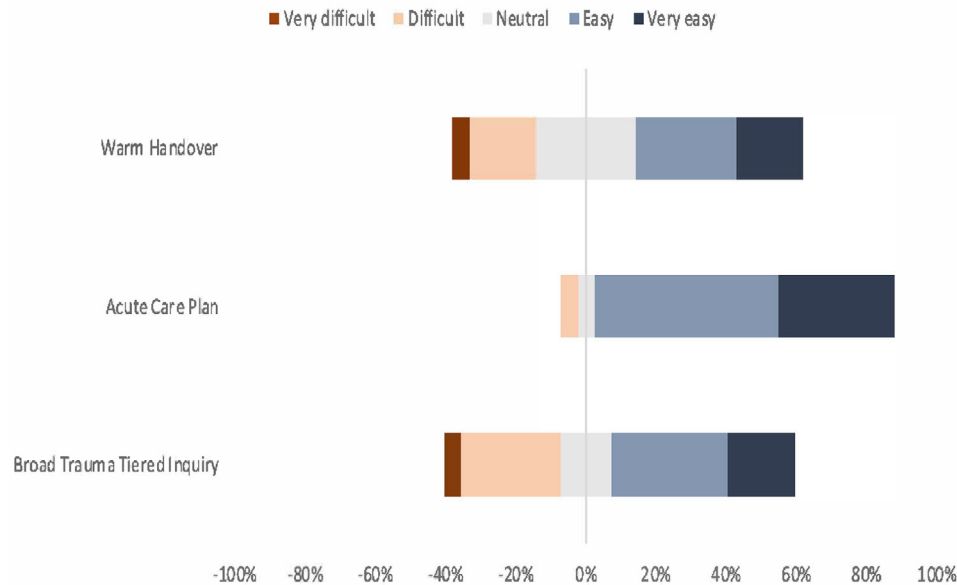
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FIGURE 5 Participant survey responses on perceived difficulty with implementation of trauma-informed care interventions in the emergency department.

and bias against people with mental health or substance use disorders. They discussed both the impact of these experiences on patient care, and their desire to deliver universally equitable patient-centered care. Some participants also reported experiencing microaggressions themselves in the course of their work.

3.1.11 | Motivation to learn

Within the TDF domain of motivation participants shared a desire to do more for patients experiencing emotional distress, including patients with many complex health care needs. They reported "good" days that positively affected their well-being and "bad" days that negatively affected their physical and mental well-being. There was much curiosity if TIC could not only improve patient care but could improve the well-being of staff.

4 | LIMITATIONS

Limitations include the small sample size and the single institution analysis that limits generalizability. The study relied on participants' self-report, which is subject to recall and social desirability. Different results might be found in different EDs, thus additional studies are needed. The study population was gathered using purposive sampling, and thus responses may have been skewed to support TIC. The initial protocol specified one-to-one in-person interviews; however, in the context of COVID-19, we pivoted to an audio-recorded virtual platform. Because interviews were conducted during the COVID-19 pandemic, our results may have influenced responses.

5 | DISCUSSION

TIC promotes a culture of safety, empowerment, resilience, and healing. TIC offers an opportunity to improve patient care and staff wellness by applying the 4Rs: realizing the prevalence of trauma, recognizing the impact of trauma, responding both individually and on an organizational level to trauma, and resisting re-traumatization.[1]

Trauma-informed approaches are recommended by ED professional societies and in clinical guidelines, yet there has been limited operationalization of TIC interventions in ED settings.[16-20] This study has several salient findings. First, interdisciplinary ED staff frequently care for patients who have experienced trauma, witness human suffering and loss, and notice the impact of bias on patients and staff. Second, ED staff overwhelmingly felt capable and motivated to provide TIC in the ED and described a passionate commitment to providing equitable and unbiased care. They reported high acceptability of a novel EHR-integrated TIC plan. Third, ED staff often reported that they lack the specific protocols, training, time, and support to implement TIC interventions and yet they endorsed the importance of trauma-informed approaches.

Participants described the personal toll of secondary trauma, which occurs through exposure to the traumatic experiences of other people, whether by listening to their stories or witnessing their suffering. Secondary trauma is especially common in "caring" professionals, occurs in up to 30% of physicians, and has been associated with multiple negative physical and psychological impacts, including depression, anxiety, post-traumatic stress disorder, and suicide.[13,14,28-30] Secondary trauma also can contribute to staff attrition and turnover.[28,31-33]

The majority of interprofessional staff in our study reported witnessing instances of bias during their work in the ED. Participants

TABLE 2 Thematic analysis of factors that influence staff implementation of trauma-informed care in the emergency department.

COM-B	TDF domain	Theme	Subtheme	Select quotations
Capability	Knowledge	Awareness of TIC principles	Familiarity with TIC	"Yes, I have heard of it [laughter] and my understanding is it's really providing care that is centered around being able to understand a patient's experience with trauma and also providing appropriate sensitive care as well as understanding how medical care is affected by the experience of trauma that the patient has had."
Opportunity	Environ-mental context and resources	Facilitators of staff emotional and psychological safety	Debriefing difficult situations	"They're doing nightly debriefing so that after each shift we can kind of talk about the hard things that happened and also some operational—what we could do better from an operational standpoint."
			Team camaraderie	"I feel like there's a really good sense of camaraderie and teamwork, and that everyone kind of lifts each other up or picks each other up when you've had a bad case… I mean, you will hear some of the sickest jokes that you'll ever hear. But in that moment, sometimes, it's what you need to just get you through to that next point."
			Supportive leadership	"We've got great leadership both at the physician and nursing level. An also an incredible social work department who have really kind of championed helping staff to deal with trauma. Hence, like I said, this trauma-informed care initiative is coming at such a great time because I think the environment is right for it"
Opportunity	Environ-mental context and resources	Barriers to staff emotional and psychological safety	Lack of debriefs	"Most cases, we do not debrief. It's not talked about. And the nurse doesn't get that break that they need… I haven't really been able to talk to anybody about how I feel after a patient—or debrief it. And then most of the times, we don't even know what happens to our patients after they leave our department, whether dead or alive."
Opportunity	Environ-mental context and resources	Opportunities to improve trauma patient experiences	Staff training	"For me, it would really be an education piece because I think that's the thing that's really lacking and that is foundational to any changes moving forward. Because if people don't understand what trauma-informed care is, we're not going to be able to provide it"
			More time with patients	"Having more time to explore some of these experiences that happened to the patient…And I want to be able to ask those questions. But again, I think there are many limitations. And one of them is usually the time."
			Decreased bias toward patients	"I'd also really like to see some sort of behind the scenes shift in the way patients are spoken about, including those who have dealt with trauma, and it's not kind of conducive to trauma-informed care. If you don't give respect to a patient behind their back, I don't think you can necessarily give them the proper respect or care that they need to their face as well."

(Continues)

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TABLE 2 (Continued)

COM-B	TDF domain	Theme	Subtheme	Select quotations
Opportunity	Social influences	Experiences of bias	Racism	Explicit bias: I think the example that I would most cite is patients with sickle cell disease who tend to be Black, although not always, are often perceived as being addicts rather than having a chronic health condition that requires chronic use of pain medications. And I have overheard racism in the tones of the way sometimes patients with sickle cell disease are treated." Implicit bias: "There were times just walking through the hallway that you would happen to notice that the majority of the patients that are out in a hallway bed instead of in a room, with at the very least a curtain or a closed door, the majority of the people who were in the hallways were where people of color. And that's pretty disheartening to see."
			Homophobia and transphobia	Explicit bias: "'Don't be like, 'I'm going to call it guy.' No. That's just going to make it worse. And honestly, it has because even some people's like, 'Look, it's clearly a dude. Why do I have to say 'she'?' And it's not your choice. How does it affect you?' Implicit bias: "But kind of how I mentioned before, homophobia, some people just aren't necessarily aware I guess of how to react to things." Implicit bias: "It's one of those things that if we have a transgender person patient, sometimes there's a lot of discussion about it and I don't think they're served very well, very smoothly…it depends on whether or not someone else has talked to us about what they want their pronouns to be."
			Sexism	Implicit bias: "Agitation, aggression, they're treated differently if they're women versus men. I think for women that it's often kind of labeled as a kind of voluntary behavior and that women may have control over it, but they're not composing themselves. Whereas for men, a different kind of medical etiology is looked at under more scrutiny, if a male kind of exhibits the same type of behavior."
			Mental health and substance use disorders	Implicit bias: "Another group that gets that received a lot of bias are people who have a diagnosis of anxiety…because their presentation in the moment has an anxiety component, they, I think, are at higher risk, especially in an emergency department for being sort of written off." Implicit bias: "I hear a lot of providers in the emergency room just like—and I can understand frustration like, 'Well, here's this person again looking for detox'. And yes, you can be frustrated but we all have to find a way."
Motivation	Optimism, consequences, intentions	Can improve care	Desire to learn and apply TIC	"I think we can and should try to improve the care we give to patients that live with violence and that have long history of traumatic events." "Some days I leave feeling the care I gave was great, other days I don't feel so good. I think I don't always know how to interact with patients that have trauma–like a crash or fall or some accident I am good."

Abbreviations: TDF, Theoretical Domains Framework; TIC, trauma-informed care.

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recognized that race, stigma, and bias exist in the ED and endorsed TIC approaches that may impact care provided to patients who experience bias.[34] In addition to affecting patient care, these experiences can contribute to secondary trauma of staff.[35]

TIC can enhance clinicians' sense of self-efficacy and resilience by equipping clinicians with the skills, resources, and support to sensitively care for those who have experienced trauma.[1] Thus, TIC offers a strategy to reduce burnout in a high-intensity work environment such as the ED, in which both direct and secondary trauma are common.[33]

Notably, this study found high staff acceptability of an EHR-integrated TIC plan that is tailored to the specific needs and preferences of an individual patient. To our knowledge, this is the first EHR-integrated TIC care plan that has been reported in the literature. The TIC care plan provides an actionable strategy for health care organizations to better care for patients who experience trauma. Developed jointly by a patient and their health care team, the EHR TIC care plan enhances patient-centeredness by improving interdisciplinary team communication and reducing re-traumatization of patients (eg, by preventing the need for a patient to repeatedly describe traumatic events or by alerting health care providers to specific behaviors or physical examination maneuvers that might trigger a trauma response for the patient). The TIC care plan is currently being implemented in our hospital system. Based on our experience, in systems already using EHRs, the TIC care plan is likely to be acceptable and relatively easy to implement. More research is needed to evaluate the effectiveness of EHR-based TIC interventions in improving patient experiences.

Last, individual-level, team-level, and systems-level factors have been found to influence whether TIC policies and procedures are implemented routinely and effectively.[35,36] Our study found that individual-level factors such as knowledge and beliefs largely supported the implementation of TIC in the ED. Participants felt that trauma and TIC were relevant to their work setting, believed that TIC was beneficial, and felt able to positively influence the care of patients who experienced trauma. Participants identified positive team-based factors such as camaraderie and the opportunity for frequent debriefs of difficult cases as important facilitators of TIC implementation. However, participants also identified systems-level challenges, such as lack of training, time, and private spaces, as well as some aspects of organizational culture, as chief barriers to implementation. Our study is concordant with previous nonemergency medicine literature that has found that resource barriers and organizational factors strongly influence staff implementation of TIC interventions.[33,35] This finding suggests that individuals, teams, and systems need to align to effectively provide TIC, and additional organizational support and resources are needed to enhance TIC implementation in the ED. Our study results are not generalizable because a single study site was used.

In summary, we identified key factors that influence interprofessional staff implementation of TIC in the ED. These findings reveal potential individual and organizational targets for behavior change interventions to improve TIC and patient and staff experiences in the ED. Future research should evaluate the impact of the trauma-informed interventions on patient and staff outcomes in the ED setting.

AUTHOR CONTRIBUTIONS

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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SUPPORTING INFORMATION

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

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