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Effectiveness of Trauma Informed Care Implementation

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Abstract

Objective: To assess the effects of implementing trauma informed care (TIC) on patient trust using a literature analysis of patient surveys and discharge rates. Design: Systematic literature review. **Methods:** A search was conducted on psychNET using the terms "trauma informed care" and "outcome" or "patient attitude" or "perception of care". Limitations of the search excluded articles focusing on a provider's perspective of trauma informed care, only used qualitative data or did not utilize patient surveys. **Results:** Three studies containing data regarding patients' opinions of TIC-incorporated care by Kokokyi et al (2021), Hales et al. (2018), and Green, et al. (2015). The first study, the variables of safety, trust, and collaboration aspects were rated higher than trauma, empowerment, peer support and cultural sensitivity by both patients and physicians. The second study displayed an increase in planned discharge rates as well as client satisfaction after TIC implementation in a nonprofit residential treatment agency. The third study revealed an increase in information and partnership between TIC-trained physicians and patients in four primary care sites. **Conclusion:** TIC implementation, especially in the primary care setting, is effective in increasing patient trust and compliance as demonstrated by patient surveys and discharge rates. TIC adoption into primary care practices is recommended in order to improve barriers to care particularly in patients affected by traumatic exposures.

Introduction:

Approximately 89% percent of people in the U.S. have experienced at least one traumatic event in their life-time and over 8% of the population has been diagnosed with post-traumatic stress disorder (PTSD).[1]. A 1998 study conducted with over 17,000 participants in California found that an increase in traumatic events, which have adopted the term "adverse childhood experiences" or "ACES" is related to an increase in poor physical and mental health outcomes. Examples of ACES include: psychological, physical, or sexual abuse; violence against mother; or living with substance abusers, mentally ill or suicidal, or ever imprisoned. People with an increased number of ACES have increased rates of smoking, alcoholism, illicit drug use, sexually transmitted infections, severe obesity, physical inactivity, depressed mood, and suicide attempts.[2] Long term effects of traumatic event exposure include increased rates of type II diabetes, cardiovascular disease and premature death.[3] Therefore, people with increased exposure to trauma need greater amounts of healthcare, yet the experience of trauma can cause feelings of betrayal and distrust making people less likely to seek care. Furthermore, people exposed to trauma are less likely to engage in the treatment process.[4]

The current healthcare environment can perpetuate or recreate traumatic experiences, necessitating implementation of an improved framework. Trauma informed care (TIC) is an approach to patient-provider interaction that aims to realize the impact of trauma, recognize the signs and symptoms associated with trauma and avoid traumatization. The core principles of TIC are; safety, trustworthiness and transparency, peer support, collaboration, empowerment, humility and responsiveness. TIC training for providers focuses on how to set the stage, perform physical exams and respond in a sensitive and appropriate manner. [5]

TIC is a new approach and our research aims to discover if TIC is effective at increasing patient trust and compliance as measured by patient survey and discharge rates. Analyzing the effects of TIC implementation will provide evidentiary support in favor or not in favor of TIC adoption to improve barriers to treating patients who have traumatic exposures.

Methods

In September 2022 the initial search in psychNET was performed using the terms "trauma informed care" and "outcome" or "patient attitude" or "perception of care". Limits included articles that focused on a provider's perspective of trauma informed care, only used qualitative data or did not utilize patient surveys. This yielded 3 articles in total used for the meta-analysis that addressed patients' perspectives of trauma informed care using quantitative data as well as patient surveys. Several hundred articles did not meet the inclusion criteria but instead focused on the education of trauma informed care towards nursing staff or medical providers. An additional search of PubMed failed to identify further studies that met the inclusion criteria (Table 1).

Table 1. Inclusion and Exclusion Criteria for Meta-analysis

Inclusion Criteria	Exclusion Criteria
• Adult patients • Patient survey data • English-speaking patients • Studies in the United States or Canada	• Pediatric patients • Studies > 10 years old • Focus on only provider perspectives of trauma informed care • Only qualitative data

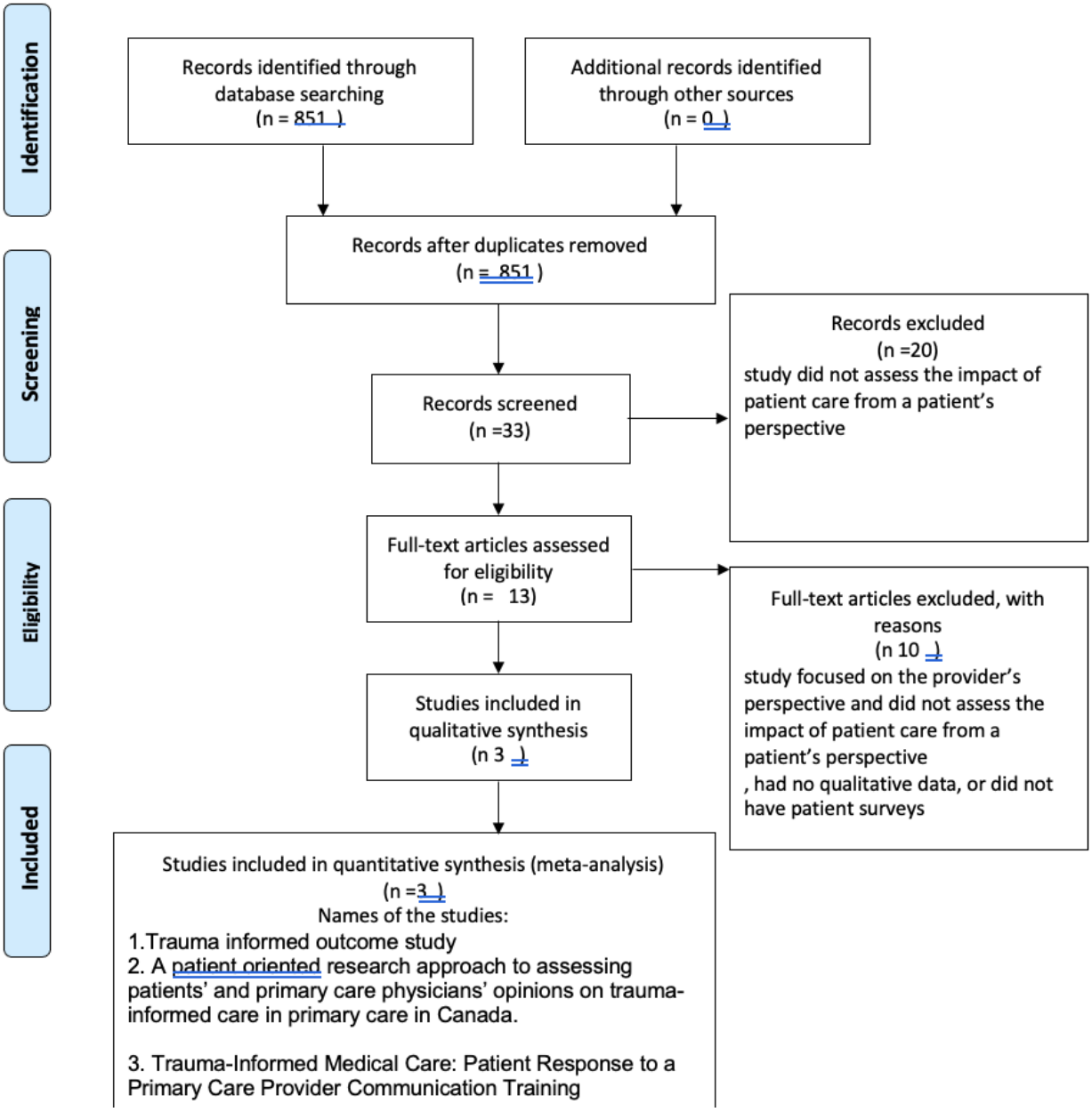

Figure 1. Prisma Flowchart of Article Search

Results

Study #1

Study objective: To gather patients' and primary care physicians' (PCP) opinions on trauma informed care and to investigate the acceptability of recommendations developed by patient, family, and physician advisors.

Study design: In phase one of the study, the opinions of patients and PCPs were assessed through surveys. Patients were asked how frequently they perceived receiving aspects of TIC and how important each of these aspects were to them. Physicians were asked how frequently they

perceived delivering aspects of TIC and how important each of those aspects were to their practice. A cross-sectional research survey design was used with a recruitment via Qualtrics panel that produced a sample that was an approximate representation of the Canadian population in regards to gender, province, and ethnicity. Two hundred and ninety-six patients completed the study and sixty physicians completed the survey. There were no exclusion criteria for patients or providers who participated and participation was on a volunteer basis. PCPs were recruited using snowball sampling methods starting with known contacts, who were informed that a $20 donation would be made to a patient advocacy organization for their participation in phase one. The patient and physician TIC surveys consisted of twenty-nine items that assessed the frequency and importance of TIC principles in primary care. The questions were refined through university students, physicians in the community, and with patient and physician advisors. Patients and physicians were asked to rate the frequency with which they received (patients) or provided (physicians) the indicated services and the importance of these services on the two 5-point scales. The TIC survey average frequency and importance scores were calculated for both patients and physicians and subscale scores were calculated by averaging responses to sets of questions assessing each of the TIC principles– understanding trauma, safety, trust, peer support, collaboration, empowerment, and cultural sensitivity. A repeated measures ANOVA was used to discover if one aspect of TIC was favored over another among patients and/or physicians.

In phase two, the research team discussed the results from phase one since patients did not perceive receiving TIC at the same level that physicians perceived administering it, although both patients and physicians rated TIC as important for patient care. Recommendations to address the discrepancy included: physician training, booking longer appointment times, patient education, support groups for patients, and clinical pathways (e.g. guidelines for trauma assessment in primary care and treatment referral process). Patient and physician surveys were used to ask how helpful they found each of the recommendations, the likelihood that the recommendations would positively impact patient care, and the likelihood that they would utilize those options if made available. For each of the recommendations on physician training, physicians were asked on a five-point Likert scale how likely they would be to attend the training. A repeated measures ANOVA and t-tests were used to observe whether one recommendation was favored over another among patients and physicians.

Study results: In phase one, significant differences were shown in how frequently patients perceived receiving TIC aspects and how important they viewed the same aspects. Both frequency and importance displayed that the trauma aspect was rated the lowest by both patients and physicians. Significant differences were observed where physician ratings were higher for how frequently they perceived delivering TIC aspects and how important they viewed these aspects compared to patients. Safety, trust, and collaboration aspects were rated higher than trauma, empowerment, peer support and cultural sensitivity by both patients and physicians. A total of 151 patients and 36 physicians from phase one participated in phase two.

Table 2

Repeated measures ANOVA for patients' and physicians' opinion on aspects of trauma-informed care.

Groups	Trauma	Safety	Trust	Peer Support	Collaboration	Empowerment	Cultural Sensitivity	Multivariate Test	Within-Subject Effects	Between-Subjects Effects
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)			
Frequency Ratings										
Patients	2.53	3.92	4.01	3.48	3.90	3.67	3.20	*TIC Factors*:	*TIC Factors*:	*Patient/Physician*
	(1.38)	(1.24)	(1.22)	(1.48)	(1.22)	(1.31)	(1.41)	Wilks' $\Lambda = .66$	$F(3.48,1190.71) = 63.92^{**}$	$F(1,343) = 26.69^{**}$
Physicians	3.85	4.57	4.63	4.20	4.60	4.15	4.03	$F(6,338) = 29.05^{**}$	Partial $\eta^2 = .16$	Partial $\eta^2 = .07$
	(.76)	(.43)	(.37)	(.71)	(.31)	(.61)	(.70)	Partial $\eta^2 = .34$		
								Interaction:	*Interaction*:	
								Wilks' $\Lambda = .91$	$F(3.47, 1190.71) = 6.86^{**}$	
								$F(6,338) = 5.38^{**}$	Partial $\eta^2 = .02$	
								Partial $\eta^2 = .09$		
Importance Ratings										
Patients	3.01	3.85	3.98	3.58	3.89	3.74	3.26	*TIC Factors*:	*TIC Factors*:	*Patient/Physician*
	(1.34)	(1.13)	(1.13)	(1.29)	(1.12)	(1.19)	(1.35)	Wilks' $\Lambda = .81$	$F(3.44,1172.41) = 31.03^{**}$	$F(1,341) = 43.65^{**}$
Physicians	4.37	4.69	4.73	4.47	4.72	4.49	4.33	$F(6,336) = 13.59^{**}$	Partial $\eta^2 = .08$	Partial $\eta^2 = .11$
	(.77)	(.42)	(.35)	(.78)	(.29)	(.61)	(.76)	Partial $\eta^2 = .20$		
								Interaction:	*Interaction*:	
								Wilks' $\Lambda = .95$	$F(3.44,1172.41) = 5.66^{**}$	
								$F(6,336) = 3.10$	Partial $\eta^2 = .02$	
								Partial $\eta^2 = .05$		

In phase two, there were no differences in physician and patient rating across the physician training recommendations. Physician training in TIC was rated as more likely to positively impact care than physician training for gender-based disparities in trauma and healthcare. There were no differences between patients and physicians in how they responded to how helpful physician training in TIC would be or how likely this training would positively impact patient care. Physicians indicated that they would be more likely to attend the training if CME credit was offered with a time range of 2-3 hours.

Results from the repeated measures ANOVA displayed a significant within-subjects effect where patients and physicians found extending appointment times to be more helpful and more likely to positively impact patient care than booking ahead longer appointments. There was a between-subject effect where physician's ratings were significantly higher than patient's for all four ratings. Patients' responses were significantly lower than physicians' for the helpfulness and likelihood of referring to the patient education materials. There were no differences among patients in the likelihood of attending peer support groups in person or online. Patients rated peer support groups for trauma survivors with specific concerns as less helpful than physicians. Patients reported that they would be less likely to refer to a clinical pathway for trauma than physicians.

Study criticism: A limitation of the study is that it was conducted in Canada, which has many similarities to the United States but is not a direct study for patients or physicians who live in the United States. Additionally, only sixty physicians participated in the survey, which is a small sample size. A strength of the study was comparing patient and physician perspectives of TIC in specific aspects so that physicians can learn which aspects of TIC patients find the most

important. This study also displayed significant heterogeneity with the participants having eleven different ethnicities and being from thirteen different regions in Canada.

Study #2

Study objective: To provide evidence on the impact that TIC implementation has on client and staff satisfaction in hopes of providing support for TIC adoption.

Study design: The University of Buffalo's Institute on Trauma and Trauma-Informed Care (ITTIC) conducted a prospective cohort study within a nonprofit residential treatment agency from 2015-2017. The agency provides services for substance abuse, mental health disorders and those at risk or who are currently homeless. The entire agency staff was trained by 18 mentors from the ITTIC. Each mentor received an initial 3-hour "Trauma 101" training plus six additional training sessions before being assigned to a program within the agency. Mentors educated staff members on TIC practice and held four "reflective conversations" for staff to look at policies, practices and procedures for possible retraumatization and make improvements where they saw fit.

Five variables were measured including: organizational climate, organizational procedures, staff satisfaction, client satisfaction and client treatment retention. All variables were measured using anonymous surveys.

Organization climate was assessed three different times (2015, 2016 and 2017) using an Trauma-Informed Client Scale (TICS), which surveyed staff members on their perceptions of their work environment based on a 5-point Likert-type scale. 170 participants completed surveys across the three years and Cohen's d effect sizes were calculated. Organizational procedures were assessed using a Trauma-Informed Organizational Self-Assessment survey based on a 4-point Likert-type scale.This variable also collected surveys from staff members in 2015, 2016 and 2017, with a total of 182 participants. Staff satisfaction was assessed using a 24-item survey based on a 5-point Likert-type scale. Data was collected by researchers in 2015 and 2016 with a total of 114 participants and Cohen's d was used to calculate effect sizes. The assumption of independence was violated for these three variables because staff members likely recurred within each of the time points.

Client satisfaction was measured via a dichotomous (yes or no) 42-item survey created by the agency that assessed client satisfaction at 30 days, 90 days and at discharge (N=393). Client treatment retention was based on discharge statuses (N=830) as either "planned" or "unplanned". Planned discharges were viewed as successful because the patient completed sufficient treatment to advance. Unplanned dischargers were generally viewed as unsuccessful because they were most often the result of a patient dropping out of treatment. The client outcomes met the assumption of independence because it is unlikely that clients across two years were the same. Pearson $\chi 2$ tests were used to determine significance.

Study results: Organization climate: Following TIC implementation, staff reported an overall increase in experiences of safety, trustworthiness, choice, collaboration and empowerment

related to their environment. The effect size was large (Cohen's d = 0.75).

Table 2. Changes in Organizational Climate Across Time.

	2015 ($n = 67$)	2016 ($n = 64$)	2017 ($n = 39$)	Effect Size (Cohen's d)		
Scales	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)	2017–2015	2017–2016	2016–2015
Safety	3.60 (.70)	3.77 (67)	4.03 (.65)	.62	.43	.22
Physical	3.65 (.76)	3.87 (.68)	3.99 (.75)	.44	.23	.25
Emotional	3.49 (.87)	3.60 (.99)	4.12 (.66)	.74	.57	.12
Trustworthiness	3.34 (.82)	3.59 (.66)	3.85 (.75)	.61	.45	.26
Choice	3.23 (.95)	3.58 (.84)	3.95 (.81)	.75	.53	.31
Collaboration	3.23 (.83)	3.53 (.77)	3.78 (.83)	.64	.37	.32
Empowerment	3.35 (.82)	3.65 (.68)	3.88 (.73)	.64	.37	.35
Desire for more training	3.27 (.78)	3.55 (.72)	3.77 (.87)	.58	.26	.37
Support for new things	3.40 (.94)	3.71 (.78)	3.93 (.74)	.59	.36	.29
Total scale score	3.36 (.72)	3.64 (.62)	3.90 (.68)	.72	.47	.34

Note. $N = 170$. *SD* = standard deviation.

Organizational procedures: Each of the scales from the Trauma-Informed Organizational Self-Assessment survey increased, most notably in supervision, support, self-care, training and education, conducting intake assessments and involving former clients. Overall there was a moderate effect size (Cohen's d= 0.62).

Table 3. Changes in Trauma-Informed Organizational Self-Assessment Across Time.

	2015 ($n = 69$)	2016 ($n = 52$)	2017 ($n = 61$)	Effect Size (Cohen's d)		
Scales	Mean (*SD*)	Mean (*SD*)	Mean (*SD*)	2017–2015	2017–2016	2016–2015
Supervision, Support, and Self-Care	2.72 (.65)	2.97 (.60)	3.22 (.57)	.76	.42	.39
Training and Education	2.81 (.73)	3.17 (51)	3.30 (.53)	.72	.25	.54
Conducting Intake Assessments	2.95 (.55)	3.20 (.43)	3.31 (.46)	.66	.24	.48
Involving Former Clients	2.59 (.81)	2.99 (.59)	3.09 (.64)	.66	.16	.54
Safety and Crisis Prevention Planning	2.90 (.68)	3.17 (.60)	3.30 (.52)	.63	.23	.41
Creating Policies	2.97 (.52)	3.24 (.51)	3.31 (.55)	.62	.14	.51
Involving Current Clients	3.12 (.62)	3.23 (.47)	3.48 (.56)	.59	.47	.19
Open and Respectful Communication	2.97 (.62)	3.20 (.43)	3.28 (.55)	.50	.17	.41
Consistency and Predictability	3.01 (.61)	3.09 (.59)	3.31 (.56)	.50	.37	.13
Developing Goals and Plans	3.21 (.61)	3.27 (.48)	3.43 (.53)	.49	.30	.11
Safe Physical Environment	3.00 (.48)	3.15 (.57)	3.24 (.52)	.47	.17	.29
Cultural Competence	2.77 (.60)	2.89 (.50)	3.06 (.67)	.45	.28	.21
Reviewing Policies	2.87 (.79)	3.01 (.64)	3.20 (.72)	.43	.27	.19
Privacy and Confidentiality	3.05 (.50)	3.24 (.48)	3.27 (.53)	.42	.07	.38
Trauma-Specific Interventions	3.14 (.58)	3.26 (.45)	3.39 (.53)	.32	.27	.22
Supportive Environment	3.01 (.59)	3.19 (.51)	3.18 (.63)	.28	.01	.32
Total scale score	2.95 (.49)	3.09 (47)	3.26 (44)	.62	.36	.29

Note. $N = 182$. *SD* = standard deviation.

Staff satisfaction: Across the survey, total staff satisfaction increased following TIC implementation (Cohen's d= 0.28). Staff trust and confidence in coworkers, working collaboratively, feelings of influence, receiving encouragement to be innovated and feeling fulfilled in work roles had the greatest increase. While the overall staff satisfaction increased, staff reported significant decreases in being well-informed of agency changes, experiences of safety in the work environment, and transparency on how staff were evaluated.

Table 4. Staff Satisfaction Scores.

	2015 ($n = 65$)		2016 ($n = 59$)		
Satisfaction Survey Items	Mean	*SD*	Mean	*SD*	Cohen's *d*
I have trust and confidence in my coworkers	3.32	1.11	4.03	0.74	.70
There is a feeling of cooperation at my site	3.31	1.21	4.03	0.93	.64
I feel fulfilled when I go home at the end of my shift	3.34	1.19	3.95	1.01	.53
My supervisor discusses with me methods for improving my performance	3.60	1.16	4.17	1.00	.51
Members of my site generally encourage teamwork	3.74	1.05	4.17	0.89	.43
I have influence on what happens at my site	3.23	1.20	3.69	1.16	.39
Members of my site assist when needed for planning, organizing, and scheduling	3.77	0.95	4.10	0.86	.36
When I am confronted with stressful situations, I get support from my coworkers	3.62	1.09	3.95	1.06	.31
Members of my site are encouraged to be creative and innovative	3.63	1.15	3.93	0.91	.29
I am provided satisfactory opportunity for training and education	3.94	0.83	4.17	0.77	.29
Members of my site are expected to interact positively with each other	4.08	0.92	4.31	0.70	.27
The agency really inspires the very best in me regarding my job performance	3.60	1.04	3.85	0.93	.25
I receive appreciation and recognition for the good things that I accomplish	3.29	1.22	3.56	1.05	.23
I am made aware of resources that are available for me through the agency	3.75	1.05	3.95	0.84	.20
It is clear to me when I need my supervisor to review or approve my work activities	3.89	0.99	4.03	0.96	.15
I am encouraged to use my own critical thinking to solve job-related problems	3.98	0.93	4.08	0.93	.11
When supervisory approval is not needed, I am empowered to make decisions	3.86	1.10	3.95	1.02	.08
The same procedures are to be followed in most situations	3.58	0.97	3.64	0.92	.06
I am expected to have up-to-date knowledge of my job responsibilities	4.23	0.75	4.19	0.78	−.06
Members of my site are expected to be constructively critical	3.63	0.84	3.58	0.95	−.06
I am proud to tell others that I am part of this organization	4.12	0.88	4.03	0.95	−.10
I work in a safe work environment	4.12	0.80	4.02	0.94	−.12
Members of my site are expected to place the well-being of residents first	4.32	0.77	4.20	0.80	−.15
I am well informed about policy, procedure, and related changes	4.06	0.77	3.92	0.93	−.17
I understand how my performance will be evaluated	3.98	0.84	3.80	0.98	−.21
Total scale score	3.77	0.70	3.96	0.64	.28

Note. $N = 114$. *SD* = standard deviation.

Client satisfaction: Client satisfaction rates decreased at 30-days and increased at both 90-days and at discharge. The decrease at 30 day was marginally significant ($p < .10$), whereas the increase at discharge was significant at $p < .001$. It should be noted that though overall satisfaction increased at 90-days, confidence and trust in staff decreased. Researchers correlate decrease in client trust in staff to the difficulties staff were experiencing with transparency and emotional safety during the transition in organization.

Table 5. Client Satisfaction Surveys.

	"Yes" Responses			
	2015		2016	
Client Satisfaction Survey Items	Count	%	Count	%
30-Day Questionnaire				
I began to develop and work on my treatment plan	186	96.88	165	94.29
I felt I was able to make suggestions to staff and they provided feedback	169	90.37	154	88.51
I felt safe while I was in the residence*	186	97.38	161	92.00
I met with my primary counselor within the first 2–3 days	184	95.83	163	93.68
I received a Resident Handbook	180	93.75	160	91.43
I received info and participated in activities that help achieve my treatment goals	177	93.16	164	93.71
I was able to bring a few small personal items that helped me feel at home	189	97.93	169	96.57
I was given direction when making my appointments with other services	179	92.75	163	93.14
On my first day, I was introduced to the staff and my peers	184	96.34	169	96.57
On my first day, I was welcomed into the program	189	98.95	171	98.28
Peer support was available and staff encouraged to use this support	180	93.26	158	90.29
The group(s) I attended were related to my personal recovery	170	88.54	153	87.93
The program guidelines were reviewed and all of my questions were answered	178	92.23	161	92.00
The staff are focused and committed to the resident's recovery	177	91.71	167	95.43
The staff gave me encouragement and hope in my recovery	186	96.37	168	96.00
The staff made sure that my immediate personal care needs were met	186	96.88	169	96.57
The staff was interested in the things I wanted to work on during my stay in the program	186	96.37	165	94.29
30-Day Questionnaire total†	3,086	94.63	2,780	93.57
90-Day Questionnaire				
I have confidence and trust in the staff	107	92.24	102	88.70
My counselor and I reviewed my treatment goals and made changes as needed	112	96.55	113	98.26
My counselor has set a positive example for me	115	99.14	114	99.13
My counselor helped me explore new ideas and skills that would help in my recovery	113	97.41	112	97.39
Overall, I am satisfied with my interactions with staff	109	94.78	104	90.43
Overall, I am satisfied with the recovery program offered	106	92.98	109	94.78
Staff offered me new ideas for solving my problems	107	92.24	107	93.04
Staff worked together in order to make my recovery go well	105	90.52	106	92.98
The groups were helpful to my recovery	98	84.48	96	84.21
The staff helped me to confront and resolve any problems that I had*	99	85.34	108	93.91
When I really needed to talk with staff they were available	112	96.55	108	88.70
90-Day Questionnaire total	1,183	92.93	1,179	93.35
Discharge Questionnaire				
I felt I was treated courteously, with dignity and with respect	132	92.96	183	93.91
I felt that my recovery needs and concerns were addressed in a timely manner	134	94.37	185	94.33
I felt that the program staff were good role models	129	92.14	186	94.87
I felt there was enough variety offered in the educational programs	116	83.45	172	95.88
I thought that the program addressed my recovery	135	95.07	189	88.21
I was able to make and discuss suggestions regarding the programs	128	90.14	185	96.43
If I had interest, I was given the support to reconnect with my family, friends, and others	136	95.77	192	94.39
Overall, I am satisfied with the recovery program offered	129	92.81	179	97.96
Overall, I was satisfied with my personal interactions with the staff	130	92.20	187	92.75
Program staff were available when I needed assistance	134	94.37	186	95.41
Staff coordinated their efforts in order to assist me in my recovery	133	93.66	190	94.90
The educational programs offered were helpful to my recovery	124	87.32	179	96.94
The program staff helped me to develop a service and discharge plan.	133	93.66	190	91.33
The staff helped me with problem-solving by offering different suggestions and new ideas	135	95.07	189	97.44
Discharge Questionnaire total***	1,828	92.37	2,592	94.81

Note. $N = 393$.
†$p < .10$. *$p < .05$. ***$p < .001$.

Client Treatment Retention: Following TIC implementation, the organization experienced a significant decrease in the number of unplanned discharges and increase in the number of planned discharges ($p < .001$).

Table 6. Unplanned and Planned Discharges by Time.

	2015	2016
Discharge Status	*N* (%)	*N* (%)
Organization unplanned***	199 (45.7)	128 (32.4)
Organization planned***	236 (54.3)	267 (67.6)
Total	435 (100)	395 (100)

Note. $N = 830$.
***$p < .001$.

Overall, results showed an increase in all three variables after implementation of TIC. The authors conclude that this research provides support for the impact of implementation of TIC on organizational, staff and client satisfaction.

Study criticism: Researchers noted that the temporal design of the study makes it difficult to rule out confounding variables. They note that implementation of TIC put the staff in an environment of radical change, which likely influenced their satisfaction to a degree. Satisfaction scales and discharge assessment were not standardized instruments as they were both designed and collected internally by the organization.

Researchers did not mention why surveys were collected across three years for organizational climate and procedures, but only for two years (2015, 2016) for the remaining variables.

Additionally, the study failed to provide transparency on curriculum for mentors and staff members. Without knowing specifics of curriculum and training, it will be hard to reproduce results in further organizations. Furthermore, the outcomes of the study are dependent on proper training provided by mentors and may be different depending on the length and quality of training.

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Study #3

Study objective: To demonstrate if patients would detect differences in TIC trained versus TIC untrained PCPS.

Study design: TI-Med was the TIC training used that encompassed a mental health professional perspective into a 6-hour CME program that used feedback from both patients and PCPs. Cultural content regarding adverse experiences and their impact on health as well as healthcare issues, including diversity was included. The TI-Med curriculum explained how traumatic events may overwhelm patients and cause them to perceive threats to their mental state, bodily integrity, or to their life. It also illustrated the impact of early childhood experiences, the consequences of trauma on the body and brain, symptoms of PTSD as well as its comorbidity with depression, and the change that trauma has on memory, perception, judgment, beliefs, worldview, and emotional skills. The curriculum focused on how interactions between trauma survivors and providers can help heal the wounds from adverse experiences faced by the patient by asking them about trauma or symptoms.

Four primary care sites (two residencies and two community programs) were randomized into two conditions (immediate or delayed training) crossed with site type so that each condition consisted of two sites: one residency and one community program. Patients completed surveys before or after their provider received training. Participants included 30 PCPs and 400 of their patients. The patients participated anonymously and were recruited in provider waiting rooms. The provider sites served low-income ethnic minority patients. Patients completed the survey in a private location after the provider visit.

The patient survey included demographics, the PHQ-2, a two-item depression screen, a trauma screen with six questions regarding interpersonal trauma exposure, and one question about an ACE study.

Pretraining surveys underwent factor analysis with three scales using orthogonal rotation. The first scale focussed on rapport (e.g. "The doctor understood my problems", the second scale focused on information (e.g. The doctor gave me guidance"), and the third scale focused on partnership (e.g. "The doctor took my preferences into account when making treatment decisions"). Mean scores of the items in each scale were computed for pre-training versus post-training samples and were compared with an independent samples t-test (the patients were not paired across time points). The tests were repeated for breakdowns by trauma exposure and PTSD symptoms. The pre-training and post-training differences were adjusted for site and clustered by physician in linear regression models to control for potential correlations among patients of the same physician. Surveys with more than five missing data points were excluded (n = 35).

Study results: The rapport scale difference was nonsignificant since PCPs at baseline were perceived as having excellent rapport. The information scale increased from pre-training to post-training samples but without statistical significance ($p < .07$). The partnership scale showed the largest and statistically significant increase in pre-training versus post-training (4.56 to 4.77 with a p-value <.01). Linear regression models adjusting for each site with pre- and post-training scores were clustered by physician and also resulted in a nonsignificant increase in the rapport scale (increase = 0.10, SE= 0.03, p=0.56) as well as the information scale (increase = 0.10, SE= 0.05, p= 0.09) with a significant increase in the partnership scale (increase= 0.21, SE= 0.07, p=0.006). Additional breakdowns of the partnership scale, combining pre- and post-samples displayed that patients with at least one PTSD symptom rated their PCPs lower ($t(df=360)=2.2$, $p < .01$) as well as patients with two or more traumas ($t(df=251)=2.3$, $p=.02$). There were higher ratings for post-trained PCPs when comparing patients with and without trauma and PTSD symptoms on the partnership scale with significant change in the no-trauma group ($t(df=169)=2.2$, $p=.03$), no-PTSD group ($t(df=251)=3.1$, $p = 0.002$), and a trend for the trauma-exposed group ($t(df=189)=1.7$, $p < 0.9$).

Study criticism: A limitation of this study is that the TI-Med curriculum does not educate providers about screening for trauma or how to identify PTSD. Additionally, patients self-reported data either before or after their PCP underwent pre- and post- training, so different patients reviewed the physicians before and after they were TIC trained. This means that the patients were not paired across time points. The differences in TIC that each individual patient could have experienced both before and after their PCP was trained could have been useful. The strengths of this study include randomization of the immediate or delayed training in the primary care sites used as well as the large sample size of 400 patients. The study sample also displayed moderate heterogeneity since the sample population contained over five different ethnicities.

Discussion

TIC improves patient satisfaction and retention rates. The challenge with analyzing the impact of TIC is creating objective data out of subjective experiences. Each article looked at client satisfaction via surveys, but varied slightly in the number and types of questions asked. Though overall client satisfaction increased in the studies, the variation makes it difficult to deduce concrete conclusions on individual aspects of trust, safety and collaboration.

The sample size of patients was sufficient at 850+ combined between the three studies. The sample size of providers was much less between 30-60 participants in each study. A larger sample size of providers would strengthen provider survey results. Another potential weakness was that the "Trauma Informed Outcome Study" was the only study in the review that analyzed patient retention rates. Repeated studies on client retention rates are important to strengthen this portion of the results. A strength of this study was that patients were diverse, varying in age, gender and race. The diverse population is a strength because TIC is intended to improve health care for the diverse community that adopts it.

The limitations of results are predominantly due to the data relying on the patient's subjective responses. Patient responses may vary based on their past experiences, reading/writing comprehension, emotions during a particular survey day, etc. Additionally, the process of implementation of TIC disrupted staff and patient's routines, which may have had an effect on emotions and therefore survey results. Overall, surveys were collected anonymously and voluntarily and are considered reliable.

Across all studies reviewed, researchers did not report any conflicts of interest or financial compensation. The only monetary exchange was a $20 donation to advocacy groups for each provider who participated in the Kokokyi study. There may be room for bias in the types of questions researchers asked participants. Surveys did provide space for outside comments and no additional thoughts were included in results. Data included in the study is therefore only the data that was decided upon by researchers from the beginning. Unlike other areas of research like pharmaceuticals or diagnostic tests, there is little to know financial or capital gain that may be achieved with positive results. Therefore, there is little incentive or bias in these studies and results are considered reliable.

Conclusion

The implementation of TIC into clinical practice improves client satisfaction and decreases the amount of patients lost to follow up as demonstrated by satisfaction surveys and discharge rates. Additionally, TIC implementation received support by primary care physicians and ancillary staff. Further research on TIC implementation in different specialties like OBGYN and emergency medicine would be beneficial because these settings may involve more invasive physical exams and potentially triggering experiences. We suggest that improved client satisfaction and participation in medical care will improve health outcomes, but further research with longitudinal studies to look at how TIC affects the health outcomes of patients is necessary. TIC has no concerning risks and its benefit in patient-provider relations warrants implementation.

References

1. Kilpatrick DG, Resnick HS, Milanak ME, Miller MW, Keyes KM, Friedman MJ. National Estimates of Exposure to Traumatic Events and PTSD Prevalence Using DSM-IV and DSM-5 Criteria. J Trauma Stress. 2013;26(5):537-547. doi:10.1002/jts.21848
2. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults. Am J Prev Med. 1998;14(4):245-258. doi:10.1016/S0749-3797(98)00017-8
3. Brown DW, Anda RF, Tiemeier H, et al. Adverse Childhood Experiences and the Risk of Premature Mortality. Am J Prev Med. 2009;37(5):389-396. doi:10.1016/j.amepre.2009.06.021
4. Treatment (US) C for SA. Understanding the Impact of Trauma. Substance Abuse and Mental Health Services Administration (US); 2014. Accessed December 1, 2022. https://www.ncbi.nlm.nih.gov/books/NBK207191/
5. What is Trauma-Informed Care? Published online 2021. file:///Users/brookeharmon/Zotero/storage/S56EL2DW/what-is-trauma-informed-care.html
6. A patient-oriented research approach to assessing patients' and primary care physicians' opinions on trauma-informed care. Kokokyi et al. (2021)
7. Hales TW, Green SA, Bissonette S, et al. Trauma-Informed Care Outcome Study. Res Soc Work Pract. 2019;29(5):529-539. doi:10.1177/1049731518766618
8. Trauma-Informed Medical Care: Patient Response to a Primary Care Provider Communication Training. Green, et al. (2015)