Compassion Fatigue Amongst Behavioral Health Workers: A Trauma-Informed Care Approach

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Abstract

Background: There is growing evidence that persistent exposure to the adverse effects of stressful work conditions, abuse, and re-traumatization without proper intervention leads to compassion fatigue (CF) and reduced compassion satisfaction (CS). Without appropriate intervention, the outcome of CF affects the patient, staff, and the organization. Despite proposed self-care measures, mental health (MH) workers continue to struggle with CF and lack the resources to combat the issue.

Objectives: Ongoing awareness on the implications of trauma and its impact on one's behavior, supports the use of Trauma-informed care (TIC) skills in creating a conducive work environment. This quality improvement project examines the efficacy of TIC education as an intervention for CF pre/post-one-hour education session among MH workers.

Methods: MH nurses (n=8) from diverse backgrounds in a Phoenix inpatient psychiatric hospital gave consent for the study. Participation was sought via flyers and entailed attending the one-hour education session, filling out a demographic, and pre/post-professional quality of life (ProQol) surveys. The ProQol standardized tool measures CF, CS, and burnout with reliability >0.70. Expected outcomes include a reduction in CF and an improvement in CS. Data analysis using intellectus software involved descriptive analysis and paired t-tests to compare outcomes.

Results: Pre/post data analysis was statistically significant, $P = 0.003$, which shows a reduction in CF and an improvement in CS.

Conclusion: TIC as an intervention for CF looks promising. MH nurses can manage their stress symptoms and that of their patients using TIC skills.

Keywords: compassion fatigue, ProQol, trauma-informed care, education, mental health staff

Compassion Fatigue Amongst Behavioral Health Workers: A Trauma-Informed Care Approach

Compassion fatigue (CF) is an ongoing concern in healthcare. It results from persistent exposure of healthcare workers to the rigors and workload of patient care. However, healthcare workers lack the resources to mitigate this plague. The outcome of CF often leads to emotional exhaustion, mental breakdown, burnout, frequent call-offs, sick calls, reduced productivity, and increased cost to the organization. This paper will explore the issue of CF in a behavioral health unit, its prevalence, describe the factors that contribute to the problem, provide evidence-based practice interventions to treat and prevent CF, and the expected outcomes from the interventions.

Problem Statement

Healthcare workers in a behavioral unit face extensive exposure to verbal abuse, physical assaults, and traumatic events from patients that disrupt the nurse-patient relationship. Often, patients can act out based on past traumatic experiences or circumstances, such as sex trafficking, rape, abuse, neglect, abandonment, etc. The outcome of the reaction is the healthcare worker perceives the actions as violent, arrogant, or non-compliant (Charge Nurse, Personal Statement, 2020). The false perception disrupts the nurse-patient relationship, which leads to conflict. Conflict arises due to a lack of understanding of trauma and how it affects one's current behavior. The tension affects the work environment leading to stress. According to Xie et al. (2021), CF is a product of the emotional, physical, and psychological exhaustion from exposure to chronic work-related stress among healthcare providers.

The magnitude of the issue of CF is widespread across the healthcare populace, system, and organization. A study on the prevalence of CF among mental health workers found that 56%

reported a high level of emotional exhaustion, and about 50% left their jobs (Kiley et al., 2018). More so, there is evidence of CFs' association with depression, insomnia, burnout, poor quality patient care, and strain on the nurse-patient relationship amongst mental health nurses (Xie et al., 2020; Xie et al., 2021). As a result, the Substance Abuse and Mental Health Service Administration (SAMHSA), a division of the federal government, has identified and supports organizations to address the issue of CF (SAMHSA, n.d). Untreated symptoms of CF have a direct link to mental health and substance abuse disorder. This issue negatively impacts the organization, leading to increased costs, increased medical reimbursements, reduced productivity, and high staff turnover. According to the National Institute of Mental Health (2018), one out of five adults will experience mental health illness, and about half will not receive treatment, which affects their quality of work. In terms of cost, a review from Harvard Business reported that employers spend about 125 to 190 billion annually due to burnout and CF (Garton, 2017).

Purpose and Rationale

Mental health workers work in stressful environments resulting in the frequent use of restraints, seclusions, crisis intervention, and re-traumatization. Resource constraints add to the stress. However, mental health workers lack the resources to mitigate CF (Sinclair et al., 2017). There is a need to equip mental health nurses with the skills to respond to stress therapeutically. According to Singh et al. (2020), CF is an occupational health issue that requires a targeted approach to workplace intervention. An evidence-based practice (EBP) intervention to mitigate CF is trauma-informed care (TIC) education. TIC education is an approach that recognizes the impact of trauma on an individual's behavior. Mental health workers in behavioral units can benefit from the TIC strategy to minimize work-related stress and CF. The purpose of this paper

is to increase awareness of CF and to determine if trauma-informed care education will reduce compassion fatigue and improve compassion satisfaction amongst mental health workers in a behavioral health unit.

Background and Significance

Joinson (1992) first used the term CF in a healthcare context to describe emergency nurses' feelings and somatic complaints as a lack of desire to nurture. Figley (1995) adopted the term CF and described it as the cost of caring, which leads to reduced compassion for another's suffering. Figley identified CF as a secondary traumatic stress disorder based on his encounter with therapists/counselors whose patients had traumatic backgrounds (Figley, 1995). Several studies explored the similarities between CF, secondary traumatic stress, and vicarious trauma in the last two decades (Cavanagh et al., 2020; Salmond et al., 2019; Zhang et al., 2018). However, regardless of the context, the negative impact of CF has a ripple effect on the staff, patients, families, and the organization. The *Code of Ethics for Nurses with Provision 5.2 Interpretative Statement* emphasized the nurses' responsibility to alleviate CF (ANA, n.d). Despite the plethora of evidence on the trauma associated with CF in mental health, there is a dearth of literature on the effect of TIC on CF amongst mental health workers. It is crucial to explore the impact of TIC on CF and its influence on mental health workers.

PICOT -Population

Compassion Fatigue (CF) is a well-known study in many nursing specialties. Several works of literature highlight the negative effect of CF amongst healthcare workers (Isobel & Thomas, 2021; Salmond et al., 2019; Zhang et al., 2018). In a systematic review of 71 studies from 19 countries, the study reports that nurses are more susceptible to CF than other healthcare workers (Cavanagh et al., 2020; Salimi et al., 2019). Also, a systematic review and meta-analysis

of 21 studies of clinical nurses suggest that 52.55% of nurses suffer from CF and 51.98% from burnout (Zhang et al., 2018). Furthermore, evidence supports a high rate of CF amongst mental health workers due to work-related stress. As previously stated, 56% of mental healthcare workers reported a high level of emotional exhaustion, and about 50% left their jobs (Kiley et al., 2018). Overall, persistent exposure to traumatic events promotes CF and reduces compassion satisfaction. On average, a mental health worker has experienced abuse and threats about 50 times (Bell et al., 2019; Xie et al., 2020). Similarly, mental health nurses often work in highly stressful environments with resource constraints. Stressful working conditions and events such as caring for traumatized patients, lack of environmental control, role ambiguity, understaffing, and confrontations with patients negatively affect their emotional and physical health leading to CF (Gunusen et al., 2020; Isobel & Thomas, 2021; Salmond et al., 2019; Salimi et al., 2019).

PICOT -Interventions

Although there is widespread theoretical and experimental awareness of CF, there is limited study on interventions against CF in nursing. Interventions revolve around psychoeducation programs and mindfulness (Askey-Jones, 2017; Copeland, 2020; Dreher et al., 2019; Grabbe et al., 2019; Kim et al., 2021; Swayer et al., 2021; Wylde et al., 2017). Psychoeducation programs are EBP interventions designed to educate healthcare workers on the early symptoms of CF, stress management, and self-care measures. In a scoping review of 17 studies that implemented psychoeducation, most of the study results showed reduced symptoms of CF. Also, a randomized trial of 75 nurses on resilience intervention and pilot studies on self-care delivery looks promising (Dreher et al., 2019; Grabbe et al., 2019; Kim et al., 2021; Swayer et al., 2021). An ongoing trend in psychoeducation for reducing CF is TIC education. Recent studies on TIC education led to a significant increase in treatment, knowledge, and self-

perceived ability to support patients impacted by trauma (Isobel & Edward, 2017; Isobel & Thomas, 2021; Nizum et al., 2020; Wilson et al., 2017). Efforts supporting the TIC approach include the initiation of mental health grant programs at all levels of government and incorporating trauma stress-related disorders as part of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria for providers (SAMHSA, 2014).

Mindfulness is another EBP designed to help healthcare workers be mindful and present in the moment (Copeland, 2020; Wylde et al., 2017). Mindfulness applies stress management activities/techniques (i.e., yoga and meditation) to assist healthcare workers with stress, anxiety, depression, and promote relaxation. A review of mindfulness-based stress reduction demonstrated reduced CF. Despite its proven efficacy, several authors note that the effect is short-term (Askey-Jones, 2017; Kim et al., 2021; Wylde et al., 2017).

PICOT -Comparison

The current practice observed amongst mental health workers is teamwork. Teamwork is an integral part of a healthcare organization that promotes high-quality patient care. There is evidence that supports an inverse relationship between teamwork and CF. According to Copeland et al. (2020), in a study of American and Canadian nurses, the adverse effects of CF are reduced in a cohesive teamwork environment. However, nurses are short-staffed and often struggle to complete tasks. Hence, due to the high prevalence of CF among mental health workers and the negative impact on the patient, staff, and the organization, it is crucial to prevent the development of CF.

PICOT -Outcome(s)

This project aimed at reducing CF and improving compassion satisfaction amongst mental health workers. The expected outcome for the project was for staff to verbalize reduced

mental, emotional, or physical exhaustion and are more equipped with the skills to communicate and deal with crises therapeutically. Also, another expected outcome was a reduction in the rate of call-offs, absenteeism, sick calls, and hiring frequency at the end of the 12- 16-week project. According to Johnson et al. (2017), a reduction in CF and improvement in the well-being of a healthcare worker promotes patient care quality. It also reduces safety incidents and costs resulting from sick leave and high turnover rates.

A common theme from several reviews is the trauma experienced by healthcare workers in their daily practice and how exposure to these traumatic events leads to CF. More so, several studies emphasized the effect of CF on healthcare workers, patients, and the organization. It would be prudent not to dismiss the adverse outcomes of CF in these reviews. Study efforts on an EBP approach such as TIC, proven effective in reducing CF, are desirable.

Internal Data

A behavioral healthcare center in the Southwest United States offers quality comprehensive psychiatric, chemical dependence, and other behavioral health services to all ages in an inpatient and outpatient setting using a holistic approach. The identified unit for this project is a 26-bed capacity unit that provides mental health services to adolescents. This facility has ongoing internal changes and restructuring. As a result, this behavioral health unit did not have a system or program to measure CF before this project. The affected population was the mental health workers exposed to traumatic events, physical abuse, and stressful working conditions leading to frequent restraints and seclusion of patients. The staff felt handicapped due to a lack of education, resources, and tools to communicate and respond to the crisis on the unit therapeutically. They endorse mental exhaustion and detachment, leading to frequent call-offs, sick calls, absenteeism, and increased hiring frequency. This issue affects the entire system. According to the

organization's president, the extra cost incurred from overtime, incentives, hiring new employees, and travelers negatively affects the organization.

PICOT Question

A review of the literature on CF led to the clinically relevant PICO question: " Among staff in an inpatient behavioral health unit (P), does trauma-informed care education (I) compared to no education (C) affect compassion fatigue and compassion satisfaction (O)."

Search Strategy

A systematic search for the relevant research articles on CF, its prevalence, and TIC interventions involved the use of different electronic databases. The electronic databases used include Cochrane review, Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed, and Psych Info. These databases had credible/up-to-date literature on the PICO. The literature search focused on essential keywords applicable to the PICO in varied combinations and restricted to the last five years. The search strategy includes mesh headings relevant to CF and TIC combined with Boolean phrases AND's and OR's.

The initial keyword search in PubMed using single keywords such as "compassion fatigue" AND prevalence did not yield many results. Due to limited data on the impact of TIC on CF, going from a broad to narrow search helped locate relevant articles. The initial keyword combination such as "compassion fatigue" OR "secondary traumatic stress" OR "vicarious trauma" AND "prevalence" OR "epidemiology" AND "healthcare professional" OR "mental health" generated over 110,230 results in PubMed. Removing some word filters narrowed the results with a final yield of 34 articles.

The article review from PubMed improved the keyword combinations for subsequent database searches in CINAHL. Search terms such as "incidence," "frequency," "emotional

exhaustion," and "stress" improved the search yield with an initial yield of 4,504 articles. Subsequent keyword changes such as "trauma-informed care" OR "trauma-informed practice" OR "trauma-informed approach" AND "education" OR "training" narrowed the search to a final yield of 65 articles.

A similar database search in Psych Info with a focus on trauma-informed care intervention utilized the combined keywords: "trauma-informed care" OR "organization change policy" AND "healthcare professional" OR "nurses" OR "mental health" OR "behavioral health" AND "education" OR "training" OR "staff education." The initial yield was 242,678 articles, and a final yield of 42 articles after modifying the database search.

The initial keyword search used in other databases did not generate much yield in Cochrane. Adding the keyword "sanctuary model" as a combination key term to trauma-informed care significantly increased the search result with an initial yield of 1173 articles. To narrow the search, applicable varied combinations such as "compassion fatigue" OR "secondary traumatic stress" OR "vicarious trauma" AND "trauma-informed care" generated a final yield of 111 articles.

The same inclusion/exclusion criteria apply to all the databases. The inclusion criteria contain articles written in English, not more than five years, and a mental health/healthcare professional. Exclusion criteria include articles that did not mention mental health workers and trauma-informed care intervention. Also, among the studies that met the inclusion criteria, articles were discarded if there were flaws in methodology, poor documentation, non-adherence to ethical considerations, and incomplete statistical analysis. Ten studies emerged as supporting evidence on the impact/implementation of TIC on CF, all within five years. Furthermore, the reference list of the relevant articles generated additional manually screened studies.

Critical Appraisal and Synthesis of Evidence

Ten articles met the inclusion criteria for the literature review as supporting evidence to determine the efficacy of TIC education as an intervention for reducing CF among mental healthcare workers. Nine of the studies were quantitative studies, while one study was qualitative. Subsequently, using the rapid critical appraisal checklist by Melnyk (2019), an in-depth evaluation process ensued to ascertain the relevance/ appropriate fit of the articles to the study. Overall, the strength of the studies was variable. A vast majority of the studies were predominantly moderate in strength. The level of evidence (LOE) reported in the studies ranged from I-V. Among the selected articles, a systematic review (SR) and a randomized controlled trial (RCT) study had an LOE of one and two, respectively. A quasi-experimental study, a mixed-method study, and a non-RCT had an LOE of three. A longitudinal study, a mixed-method study, and two cross-sectional studies had an LOE of three, while one descriptive SR study had level five (See Appendix A, Table A3).

All of the reviewed articles supported TIC education and implementation. Eight articles reported outcomes that either directly/or indirectly reduced CF among healthcare workers after TIC education/implementation. Although all the studies collectively assessed the impact of TIC education/implementation on healthcare providers, only two focused on mental health nurses in hospitals. Regardless, the studies used diverse demographics specific to healthcare providers and settings across the United States, Europe, and Canada. Overall, the data result reflects a decrease in CF, improved TIC knowledge, TIC organizational culture, and professional quality of life/compassion satisfaction. The remaining two articles assessed the impact of trauma and predictors of CF and reported increased trauma awareness and identifiable CF factors. These findings are in line with previous literature on CF awareness and predictors. Also, three of the

studies used online learning tools. However, due to the focus of the study, it is not clear which training: online or in-person TIC education has a better outcome.

The measuring tools were inconsistent among the studies. Four studies utilized ProQol, a standardized measuring tool commonly used to assess CF/burnout (BO)/STS. All of the instruments were valid and reliable with Cronbach alpha's of > 0.5, except for the online training toolkit. Besides this, the sample size used in the studies ranged from 13 to 520 participants. A common identifiable weakness among the studies is the small groups, predominantly female participants, and significant dropout rates. Only four studies out of 10 reported their attrition rate with an average of 32.15%. The high dropout rate, either due to time constraints, staffing issues, or workload, could explain why the other studies did not report the attrition rates or controlled the attrition by choosing a demographic that could likely complete the study. Also, the effect size used varied from moderate to large effect sizes, which indicates a strong relationship between the variables in the study. Subsequently, some authors gave gift vouchers during follow-up studies/raffle draw at the end of the study. From a personal perspective, the idea of a gift voucher/card gift is a great incentive considering time constraints and understaffing issues that nurses face in inpatient settings. Regardless, the consistency of the data results across the studies indicates that skewed data is unlikely (See Appendix A, Table A3).

Evidence Synthesis

The data result from the literature review is satisfactory. As expected, a limited number of studies applied the TIC approach to curb CF among mental health nurses. A primary factor associated with CF among mental health workers is the stressful working conditions, such as resource and time constraints. Hence, resource/time constraints could explain the small group size and significant dropout rates during the study. There is evidence that TIC education and

implementation improve organizational working conditions. A trauma-informed culture improves the professional quality of life, leading to reduced CF and improved compassion satisfaction. Mental health staff who adopt the TIC approach showed improved attitudes, behaviors, communication, and reduced use of physical restraint/seclusion. Also, the application of the TIC approach depicts the role organizations place in maintaining a conducive working environment. Organizational support fosters a conducive working environment leading to reduced CF.

A commendable aspect of the TIC education/ implementation is the ease of integration into practice. None of the studies required a unique setup or routine practice change for the implementation. Staff can easily adopt the TIC approach without any significant practice change. Also, the cost-effectiveness of the entire process is an advantage. The online tool kit is the only tangible cost associated with implementation if the organization does not have one. Unfortunately, the time it takes to see results varies between three months to three years. But it takes time to see the effects of a cultural change. Hence, the benefits of the outcome of TIC education/implementation outweigh the risks.

The concern for sampling bias has a limited effect on the study's outcome. The studies' predominantly high percentage of females suggests that nursing is primarily a female occupation. Hence, the likelihood of having an equal number of males to females in a nursing study is low. Moreover, some studies suggest that females suffer more physical aggression than males. While this is not the focus of the study, evidence supports microaggression as a factor in CF. Hence, the predominantly female sample size in nursing gives a clear view of the effect of CF and the impact of TIC education.

Although age is an essential demographic factor, it should not be significant when considering CF. Individual responses to CF/stress vary regardless of age. Besides, personal stressors add to CF, and each individual has a unique stressor(s). Also, the concern for exaggerated self-report because of the gift cards and raffle draw in some studies is not factual. Besides, the raffle draw was at the end of the study, while the gift card was at follow-up. While there is a likelihood of this being an issue, the consistency of the data results among the studies suggests the efficacy of TIC education/implementation as an intervention to minimize CF.

Theory/Theoretical Framework Application

The conservation of resources (COR) theory is a framework that helps understand the relationship between stress and physical health and how the balance of resources impacts compassion fatigue/ compassion satisfaction. Steven Hobfoll published COR in 1989. The theory posits that bodily and physiological stress reactions are innate survival response that compels the individual to act and recover lost or depleted resources (Hobfoll, 1989). The COR emphasizes the value placed on resources by the caregiver. According to Coetzee & Laschinger (2017), scarcity of resources heightens the caregiver's perception of a patient's needs as a threat and vice versa. COR theory implies that preventing CF involves helping people identify and restore the most critical resources depleted due to a traumatic event. COR is applicable to the issue of CF among mental health workers. There is evidence that supports a correlation between CF and work-related stress. As mentioned earlier, staff perception of a threat leads to frequent codes, restraints, and seclusions. COR offers insight into coping with CF by promoting a positive practice environment using TIC education-based intervention (See Appendix B, Figure B1).

The COR is synonymous with the Sanctuary Model Theoretical Framework. The Sanctuary Model is a TIC framework for organizational change intervention using the concept of

a therapeutic community. This theoretical framework utilizes the four "Rs" of trauma-informed care. It enables mental health staff to: *realize* the impact of trauma, *recognize* the signs/symptoms, *respond* therapeutically, and *resist* re-traumatization of staff and patients (See Appendix B, Figure B2). Sandra Bloom and her team developed the sanctuary model framework in the 1980s. The goal of the sanctuary model is to facilitate and maintain a nonviolent and productive community that helps individuals heal from trauma. The sanctuary model framework creates a restorative care culture to enable mental health workers to become emotionally accessible to each other and the patients, which fosters positive nurse-patient relationships and reduces CF (Esaki et al., 2013).

Implementation Framework

The evidence-based practice framework for this project is Rosswurm and Larabee's model. The model permits the practical innovation and implementation of an evidence-based practice change using strategic principles to mold verifiable evidence/ background knowledge into practice. The focus is to help healthcare professionals identify the need for change. The Rosswurm & Larabee model has found practical applications in primary and acute inpatient care settings. This model is the right fit to lead the process of this project because it serves as an effective tool for healthcare staff struggling with change in an inpatient setting. Hence, this framework will guide the implementation of TIC education for mental health staff at the proposed facility.

According to Rosswurm and Larabee (1999), the model stems from theory and literature research that supports evidence-based practice, standardized language, change theory, and research utilization. The authors proposed six steps for successful practice change as follows: (1)- assessing the need for change; (2)- locating best evidence; (3)- synthesizing the evidence;

(4)- designing practice change; (5)- implementing/evaluating change; and (6)- integration/maintenance of change. The initial stage requires interviewing nursing staff, techs, Licensed Practice Nurses (LPNs) in all the units, and stakeholders. Then, using a series of data research to determine the best intervention to address the issue. The outcome of the search led to TIC education as an intervention. The next step was the critical appraisal and synthesis of evidence to assess for validity, reliability, and feasibility of TIC education as an intervention in practice, followed by the design, implementation, and evaluation of the proposed intervention for effectiveness (See Appendix B, Figure B3).

However, change is difficult and often accompanied by uncertainties. Change demands motivation, discipline, and partnership between leaders in the organization and the staff. An interactive unit leads to collaboration, creating synergy, integration, and balance. In following the steps of this model, healthcare professionals understand the uniqueness of each individual in the process. According to the third complexity theory (Porter-O'Grady & Malloch, 2018), there is no schism in the body. When one part is not functional, a corresponding change in function results in the other parts. Hence the fight to curb CF is a two-way process that entails collaborative effort between the organization and mental health staff. Based on the supporting evidence, TIC education implementation takes time but has long-term benefits in promoting an organizational culture of care. Fortunately, this model supports continuous evaluation of the effect of TIC education beyond the implementation phase.

Methods

Institutional Review Board (IRB) Approval

The project site signed the support letter to commence the project on June 6th, 2022. On meeting all requirements for the application, Arizona State University IRB approved the project

on June 10th, 2022. Also, the graduate student completed the CITI training for human participants on May 16, 2022, while the primary investigator completed the CITI training on February 5th, 2020.

Population

The participants for this project were mental health workers, which includes nurses and behavioral health technicians at the project site. Ethical considerations include meeting the following inclusion criteria. The participant must be 18 years or older, a mental health worker for at least six months, currently working at the project site, able to read, write, speak, and comprehend the English language. Also, the participant must be willing to participate in the one-hour pre-and post-education on trauma-informed care. Participants were not part of the project if they did not meet the exclusion criteria. The exclusion criteria were as follows: a new graduate recently hired as a mental health worker at the project site, participants with a recent history of post-traumatic stress disorder and currently receiving treatment, participants with acute and chronic conditions that limit their ability to participate in the study such as individuals with hearing/ visual impairment, and participants who either quit or got fired from their position at the project site during the study.

Setting

The project site is a 127-bed facility in Phoenix, Arizona. The project took place in the auditorium of the project site. In-person education took place at the exact location day and night to accommodate participants working day or night shifts.

Instrument

The two data collection tools used in this project were the ProQol and the demographic survey. The demographic survey was a self-report generated by the graduate student, while

ProQol version 5 was a standardized survey tool. The survey consisted of a 30-item self-report questionnaire used to assess the impact of trauma on individuals exposed to traumatic events in work-related settings. The one-page form took approximately two minutes to complete. ProQol contains three subscale areas compassion satisfaction (CS), burnout (BO), and compassion fatigue (CF). The participant's response on the ProQol was on a five-point Likert scale of 1= never, 2 = rarely, 3= sometimes, 4= often, and 5 = very often. ProQol has a reliability of>0.70, and the Cronbach alpha values are stable for all subscales ranging from 0.80 to 0.90 (Heritage et al., 2018). Also, ProQol demonstrates significant correlations when tested in conjunction with depression, anxiety, and stress scale for construct validity.

Project Description

The project took place in three phases. The pre-intervention phase involved the distribution of flyers on the units for recruitment and explaining the project to the staff. It took three weeks to complete the pre-intervention stage. Next was the intervention phase, which involved in-person interaction with the participants. After three weeks, the one-day in-person TIC education commenced on September 24th, 2022, at the scheduled time. Eight staff members participated in the project. Each participant received a demographic questionnaire and a ProQol survey. Filling out the demographics form and the survey indicated consent for the project. It took about ten minutes to complete the survey. Before the TIC education, the participants created an anonymous identification (ID) and completed the 30-item pre-survey. The participants chose the first three letters of their first name and the last four digits of their preferred number and used the same ID for the pre, post, and follow-up surveys. The 40 minutes presentation covered the six principles of TIC practice/ skills and featured two YouTube videos on TIC. After the education, the participants engaged in a $5 Starbucks draw and completed the post-survey. Four

staff won the draw after question and answers. The participants continued practicing TIC skills after the session. Post-intervention occurred with a one-month follow-up ProQol survey.

Outcome Measures, Data Collection, and Data Analysis Plan

This project aimed to reduce CF and improve mental health workers' compassion satisfaction. A future outcome measure was a reduction in calls, sick calls, and hiring frequency at the end of the 12 weeks project. The chief nursing officer at the project site tracked trends on a bar chart and relayed them to the units as part of the quality improvement process. Intellectus was the software for the outcome analysis. Data obtained from the project were analyzed and compared to determine statistical measurement and outcome using Intellectus software. Data analysis commenced on October 24^{th,} 2022, to March 2023. Analysis of the participant's demographics used descriptive statistics. A sample paired T test determined the level of significance ($p<0.05$) between the pre, post, and follow-up surveys. The anonymous identification (ID) was the identifier that links the pre-and post-surveys used during data analysis. Collected data was placed in a sealed envelope and stored in a locked cabinet. The data remained in storage until the end of the semester and shredded after data analysis completed in May 2023. This project did not receive any funding or grants.

Results

Data Analysis Procedures

Data generated from the ProQol pre, post, and one-month follow-up survey and demographic data was manually entered in intellectus with the appropriate variables assigned. After assigning the variables to each column, a descriptive analysis was run to determine a summary of the outcome variables.

Descriptive Data

A total of eight participants attended the one-day training session. Demographic analysis shows that most participants were females (n= 6, 75%) and males (n= 2, 25%). In terms of ethnicity, most of the participants were white (n= 4, 50%), black (n = 3, 37.5%), and undisclosed ethnicity (n= 1, 17.5%). Participant education level shows that most participants were educated at the college (n= 4, 50%) or graduate (n = 4, 50%) level, respectively. Also, participants (n=6, 75%) reported exposure to trauma, while (n = 2, 25%) participants denied trauma exposure.

The average age of the participants was 42.62 years (*SD* = 11.67), ranging from 26 to 65 years. The mean number of years worked as a mental health worker was nine (*SD*= 6.55); the time worked ranged from 2 to 20 years. The mean number of years the participant's worked inpatient was 7.50 years (*SD* = 5.37). The number of years worked in inpatient ranged from two to 15 years. The mean number of hours worked per week was 41.75 (*SD* = 9.16), and the number of hours worked per week ranged from 36 to 62 hrs./per week.

Frequency Table for Demographic Variables

Variables	*n*	*%*
Education		
College	4	50.00
Graduate	4	50.00
Race		
Black	3	37.50
Anonymous	1	12.50
White	4	50.00
Gender		
Female	6	75.00
Male	2	25.00
Trauma		
no	2	25.00
yes	6	75.00

Statistical Significance

The ProQol survey data analysis used a two-tailed paired sample t-test to examine if the mean difference between each pair of the domains was significantly different from zero. For the pre/post total professional quality of life (ProQol) scores, the result of the paired samples *t*-test was significant based on an alpha value of .05, t (7) = -4.32, p = .003, indicating that TIC intervention was an effective intervention for compassion fatigue and compassion satisfaction. **See Figure B4**.

Two-Tailed Paired Samples T-test for the Pre/Post Total ProQol scores

Pre_ProQol Score		Post_ProQol score				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
90.25	9.97	101.38	15.22	-4.32	.003	1.53

Note. N = 8. Degrees of Freedom for the *t*-statistic = 7. *d* represents Cohen's *d.*

Also, data analysis was run for the individual domains. For the pre/post compassion satisfaction (CS) domain, the result of the paired samples *t*-test was significant based on an alpha value of .05, t (7) = -3.99, p = .005, indicating that TIC intervention was effective for compassion satisfaction. All the participants identified improved levels of compassion satisfaction post-education.

Two-Tailed Paired Samples t-Test for the Difference Between Pre/post Compassion Satisfaction

Pre_Compassion Satisfaction		Post_Compassion Satisfaction				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
36.25	6.32	40.00	5.29	-3.99	.005	1.41

Note. N = 8. Degrees of Freedom for the *t*-statistic = 7. *d* represents Cohen's *d.*

For the pre/post compassion fatigue domain, the assumptions for the compassion fatigue domain were violated, and a Wilcoxon test generated in place of a two-tailed paired t-test. The two-tailed Wilcoxon signed rank test results were significant based on an alpha value of .05, V =

15.00, z = -2.03, p = .042. This finding demonstrates that TIC intervention was effective for compassion fatigue.

For the pre/post burnout domain, the result of the two-tailed paired samples *t*-test was not significant based on an alpha value of .05, t (7) = 0.75, p = .478, indicating that TIC intervention was not effective for burnout. This finding aligns with the limitation of the ProQol tool, which is ineffective for measuring burnout (Heritage et al., 2018).

Two-Tailed Paired Samples T-test for the Difference Between Pre/Post Burn Out Scores

Pre_Burnout Scores		Post_Burnout Scores				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
27.50	5.24	25.88	7.77	0.75	.478	0.26

Note. N = 8. Degrees of Freedom for the *t*-statistic = 7. *d* represents Cohen's *d.*

Impact of Project & Sustainability Plan

Evidence supports trauma-informed care education to minimize compassion fatigue and improve compassion satisfaction. By using the TIC education intervention approach, mental health nurses can better understand their stress symptoms and that of the patients. This evidence set the stage for the project intervention. Also, evidence supports the importance of organizational culture and staff knowledge of TIC/practices to promote a culture of care and a conducive working environment for the staff. An unconducive work climate affects staff perception and how they respond to each other/patients. Re-traumatization of staff/patients, staff assault, frequent codes, seclusions, physical restraints, lack of resources, and time constraints lead to CF. Hence, a trauma-informed model benefits the organization, mental health workers, and patients when it promotes a TIC culture for trauma-informed care practices to flourish.

After the project's completion, the goal is continuous improvement in TIC knowledge and practices guided by the Sanctuary model. Monthly team meetings will focus on the feedback

from unit managers on the challenges staff encounters with the current implementation. At six months, one year, and in subsequent years, the unit managers will disseminate the professional quality of life (ProQol) survey to assess and ensure continued reduction in compassion fatigue, improved compassion satisfaction, reduction in the number of codes, use of physical restraints, and seclusion. A bar chart will highlight the percentage of achieved goals in each area. The initial target goal is greater than 50% in the first six months. As the year progresses and numbers improve, the facility can increase the target number with a final target percentage set at greater than 80% in each target area. Suppose the initially targeted percentage is less than 50% within the first six months. In that case, the education instructor will use the sanctuary model tool kit to disseminate TIC education. Staff will fill out the ProQol questionnaire and identify potential challenges mitigating the effective implementation of TIC practice. Also, the facility will adopt and integrate the use of the adverse childhood experience questionnaire (ACE) for children and adults during intake and follow up with the units on current use every quarter to enable staff better understand the past trauma that might affect patients' behavior.

Discussion

Summary of Findings

Evidence supports using TIC as an intervention for compassion fatigue and compassion satisfaction. Based on data analysis, TIC reduced compassion fatigue and increased the professional quality of life for the staff. Overall, the participants showed a 50% improvement in compassion fatigue post intervention leading to improved perception of professional quality of life. There were verbal reports of improved knowledge of CF, behavior, and trauma awareness- a finding synonymous with studies using TIC intervention. The professional quality of life tool was ineffective in measuring burnout. Besides, burnout is not the focus of this project. TIC

intervention is a model for improved knowledge, behavior, and trauma awareness. A model that promotes sustainability in practice. Also, this intervention's benefit in promoting a conducive work environment further lends credibility to its practical use. Besides cost-effectiveness and ease of integration into practice, evidence shows a 22% reduction in physical restraints with TIC skills and practice (Duxbury et al., 2019). An intervention that helps reduce the stressful effects of the environment will promote the professional quality of life of the staff.

Limitations and Relationship to Other Findings

A significant limitation of this project is time constraints. The project site is short-staffed with a heavy patient load. Scheduling conflicts were an issue and impacted the number of participants in person for the education session. Also, obtaining the one-month follow-up data was difficult due to the same issue. As a result, only three participants could provide follow-up data one month after TIC education. This limitation negatively affected the depth of the data report due to the high attrition rate. Coincidentally, most of the evidence on TIC had small sample sizes. Several authors reported a similar concern. Another limitation of the study was limited studies that used TIC intervention specifically for compassion fatigue and compassion satisfaction. Systematic and randomized trials using TIC were limited to one study. The other studies had evidence in the range of level three to level five. Hence, the lack of time and scheduling constraints was a potential factor for the lack of high-level evidence using this intervention. Also, some past evidence suggests that experienced staff have thick skin and are immune to compassion fatigue. While this is debatable, it is essential to note that individuals react differently to stress. Besides, the number of participants (75%) reporting trauma exposure suggests a dissonance in associating the number of years worked with minimal compassion fatigue among staff.

Future Recommendations

Future studies that used TIC intervention for compassion fatigue and compassion satisfaction with a large sample size will enhance the results' effect size, generalizability, and validity. Also, the design of this study did not look at the outcome of the effects over long term. TIC education was for one hour, and the one-month follow-up was inconclusive due to the high attrition rate. It will be worthwhile to carry out this study on a large scale over long periods to determine long-term efficacy. Implementing research studies that use more systematic and randomized trials for TIC intervention will foster a credible outlook for using this intervention as an evidence-based tool beneficial in future practice. Nursing schools and other healthcare institutions can adopt the evidenced based strategies from the studies into their curriculum to educate and inform future mental health nurses on CF symptoms, and TIC skills/practices. Also, study efforts can focus on comparing in-person versus online education to determine if one methodology provides a better outcome.

Conclusion

Mental health workers exposed to traumatic events in work setting face considerable challenges, such as frequent codes, seclusions, and physical abuse, which can lead to CF and reduced compassion satisfaction. As a result of the recent awareness of the implications of trauma and its impact on one’s behavior, TIC may prove beneficial in creating a conducive work environment. Current research studies report increased knowledge/awareness of TIC practices/skills can decrease CF among mental healthcare workers. Also, there is evidence of the positive impact of TIC in promoting a conducive working environment by reducing the frequency of codes, use of physical restraints, seclusions, and physical abuse. Mental health

workers can monitor their professional quality of life using the ProQol standardized assessment tool to measure CF and compassion satisfaction.

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Appendix A

Evaluation and Synthesis Tables

Table A1
Evaluation Table for Quantitative Studies

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Purtle J. (2020). Systematic review of evaluations of trauma-informed organizational interventions that include staff trainings **Country** United States **Funding** Robert Wood Johnson foundation -National Institute of Mental Health **Bias** -Possible attrition bias	TIC framework, Train the Trainer Model	**Design** Systematic Review **Purpose** To assess the effect of TIC organizational change on staff training	**N= 23** **Demographics** -Healthcare providers -Mental health service providers -Nurses Children/adolescent/adult patients **Setting** -Juvenile justice facility - Pediatric /adult psychiatric hospitals -Emergency room -Primary care clinics Child welfare agency -Schools -Residential psychiatric facility Outpatient clinics **Inclusion criteria** -empiric study, outcome study evaluation	**1V1** Effect of TIC organization intervention **DV1** Staff outcomes **DV2** Persistent staff outcome over time Client outcomes **Definitions:** None reported	**Tools:** -Questionnaires -Administrative data -Risking connections curriculum assessment -National child traumatic stress network curriculum -Single item instruments -Trauma systems readiness tool -TIC medical care questionnaire -TIC system change instrument -Attitudes related to the TIC scale -TIC practice scale -Ticometer **Validity/Reliability**	**Statistical Test used** -Multivariate regression -SD -Mean -Effect size	**DV1** -significant improvement in staff outcome pre/post-training. Effect size = I SD above the mean. -Improved knowledge and attitude about TIC practice pre/ post-study. Effect size small -Reduced staff assault by 1.13 per 100 staff days ($p<0.01$) pre/2-year post-intervention **DV2** -Improved TIC knowledge 10.8 (SD=2.17)	**Level of evidence** Level I **Strengths** -TIC training Improved staff knowledge, attitudes, and behaviors -Meaningful impact of TIC organization intervention on patient outcome **Weakness** -Mostly single groups -mostly post-test designs

Key: **CF** Compassion Fatigue**, CG** Control Group**, CI** Confidence Intervals, **CR** ∝ Cronbach ∝, **CS** Compassion Satisfaction, **DV** Dependent Variable, **IG** Intervention Group, **IV** Independent Variable, **ProQoL** Professional Quality of Life**, RQ** Research Question, **SAMHSA** Substance Abuse and Mental Health Services Administration**, SD** Standard Deviation, **STS** Secondary Traumatic Stress, **TIC** Trauma-Informed Care

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
			-Empiric study, not outcome evaluation -Nonempiric study **Exclusion criteria** **N= 609** -Evaluations of TIC program/clinical interventions integrating TIC treatment in primary care -exclusive qualitative evaluations -Single-group, posttest only evaluations -Nonempirical descriptions of the implementation process **Attrition** Not reported		-Ticometer -∝ = 0.88 -TIC practice scale-∝ = 0.96 -Attitudes related to TIC scale-version 35-∝ = 0.91 -TIC system change instrument- Self-report used to assess the perception -TIC medical care questionnaire -Trauma systems readiness tool-∝ = 0.94 National child traumatic stress network curriculum-∝ = 0.99 Risking connections curriculum – not reported -Questionnaires-not reported		pretraining to 12.7 (SD = 2.02 post-training and 12.4(SD= 2.02, $p<0.05$) one-month follow-up -Improved frequency of trauma screening pretraining, 3months and six months follow-up($p<0.001$) **DV3** -Decreased disciplinary office referral by 32% (pre and 1year post-intervention, and down 87% at five years post-intervention -Reduction in the incidence of seclusions from 9.2 to 4.4	-Inconsistent use of assessment instruments -Exclusion of interventions that embraced TIC practice but did not use the language -questionnaire developed by authors -high attrition at follow-up -Absence of control group **Feasibility** -Short training duration (1hr to 5 days) **Application** Evaluation serves as a useful resource for implementing TIC organization staff training

Key: **CF** Compassion Fatigue**, CG** Control Group**, CI** Confidence Intervals, **CR** ∝ Cronbach ∝, **CS** Compassion Satisfaction, **DV** Dependent Variable, **IG** Intervention Group, **IV** Independent Variable, **ProQoL** Professional Quality of Life**, RQ** Research Question, **SAMHSA** Substance Abuse and Mental Health Services Administration**, SD** Standard Deviation, **STS** Secondary Traumatic Stress, **TIC** Trauma-Informed Care

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Hoysted et al. (2019). A pilot randomized controlled trial evaluating a web-based training program on pediatric medical traumatic stress and trauma-informed care for emergency department staff **Country**: New Zealand and Australia **Funding**: -Scholarship from the Australian Government Research Training Program -National Health and Medical	Psychological framework	**Design:** Parallel group superiority randomized controlled trial **Purpose:** To evaluate the efficacy of web-based TIC education among emergency room staff	**N= 71** Training group: n= 32 CG: n = 39 **Demographics:** Age, gender, profession, department, past training in TIC or psychosocial care **Setting:** Australian and Emergency room staff **Inclusion Criteria** - nurse or physician in Australia or New Zealand emergency room - fluent in English - internet access **Exclusion:** -did not complete baseline assessment or demographic measures **Attrition:** - 9.9% at one week follow up - 12.7% at one month follow up	**IV1:** Online TIC training program **DV1:** Knowledge of pediatric traumatic stress **DV2:** Knowledge of TIC **DV3: Definitions:** Psychosocial Care Survey Knowledge Scale is a 7-item self-report measure of pediatric medical traumatic stress.	**Tools:** -7-item questionnaire -Psychosocial care survey knowledge scale -Cognitive theory of multimedia learning **Validity/ Reliability:** -7-item questionnaire has content validity/reliability. Measured all aspects of the demographic characteristics. -Psychosocial care survey knowledge scale's content validity review by eight subject matter experts. Internal consistency 0.86, One-month re-test reliability was acceptable (r=0.75). - Cognitive theory of multimedia learning is an evidenced-based tool used for instructional design in medical education	**Statistical Tests Used:** -Descriptive statistics -T-test -Chi-square test -Mixed method repeated measures analysis of variance. -Sensitivity analysis	**DV1:** - significantly difference between the training and CG at 1-week and 1-month follow up ($p < 0.001$) -Large effect size of interaction ($f = 0.42$) **DV2:** -74.2% of participants note TIC useful in their role -80% note training met most of the training needs 60% indicate moderately confident incorporating in practice	**Level of Evidence**: Level II **Strengths**: Improved knowledge of TIC compared to CG. -Minimal time commitment and resources **Weakness**: -Lacks generalizability -mainly female participants -Overestimation due to large effect size **Feasibility**: -Training is cost and resource efficient. -Online training offers flexibility of time. **Application**: -TIC implementation is a useful resource to healthcare providers to minimize stress, injuries and improve

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Research Council -Australia Early Career Fellowship grant **Bias**: -$30 gift voucher to participants after one-month follow-up.								therapeutic response to traumatic events
Berge-Poppe et al. (2021). Changes in knowledge, beliefs, self-efficacy, and affective commitment to change following trauma-informed care education for pediatric	TIC framework Sundborg's structural model	**Design:** Quasi-experimental design **Purpose:** Impact of TIC education program on affective commitment, beliefs, knowledge,	**N= 13** **Demographics:** -Age -Current organization Diverse ethnic groups **Setting:** -Outpatient peds clinic -Inpatient psych hospital -Service provision agencies -Social welfare agencies -Behavioral health clinic **Inclusion criteria** Adult healthcare providers	**IV1:** TIC education/training **DV1:** Pre-post changes in affective commitment, knowledge, beliefs, and self-efficacy **DV2:** Relationship among affective commitment,	**Tools:** -Commitment to the organizational model -Subscales **Validity/ Reliability:** -Six item Commitment to organizational model for beliefs ∝ = 0.923 -11 item Subscale for trauma, ∝ =	**Statistical Tests Used:** -descriptive analysis -Wilcoxon signed-rank test -Spearman correlation -Cronbach alpha	**DV1:** Statistical significance in belief, knowledge and self-efficacy p values (<0.003, <0.001, <0.013) Effect size large (r=0.69 to 0.88) **DV2:** Significant correlation for knowledge and affective commitment pre-	**Level of Evidence**: Level III **Strengths**: Improved TIC knowledge on measured variables **Weakness**: -50% had prior knowledge of TIC

Key: **CF** Compassion Fatigue**, CG** Control Group**, CI** Confidence Intervals, **CR** ∝ Cronbach ∝, **CS** Compassion Satisfaction, **DV** Dependent Variable, **IG** Intervention Group, **IV** Independent Variable, **ProQoL** Professional Quality of Life**, RQ** Research Question, **SAMHSA** Substance Abuse and Mental Health Services Administration**, SD** Standard Deviation, **STS** Secondary Traumatic Stress, **TIC** Trauma-Informed Care

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
service providers **Country**: United States **Funding**: Research grant from the University of South Dakota **Bias**: -possible sampling bias		and self-efficacy.	-Worked at their current organization for five years **Exclusion:** Not reported **Attrition:** Not reported	knowledge, beliefs, and self-efficacy **Definitions:** Affective commitment: beliefs that promote the purpose and value of an organization Self-efficacy a strong belief in one's ability to achieve a goal	0.822(pre-education), ∝ = 0.791 (post education) -30 item subscale for knowledge, ∝ = 0.966(pre-education), ∝ = 0.941 (post education) -Six-item subscale for TIC, ∝ = 0.872(pre-education), ∝ = 0.802(post education) -seven item subscale for self-efficacy, ∝ = 0.748(pre-education), ∝ = 0.825post		education ($p<0.01$). Self-efficacy/belief about trauma/TIC significant, $p<0.01$	-Restricted to pediatric providers -Small size **Feasibility**: Survey tools are easy to use and less bulky. Cost-effective. **Application**: TIC education/training can serve the need of mental healthcare workers to minimize re-traumatization and CF.
Duxbury et al. (2019). Minimizing the use of physical restraint in acute mental health services: The outcome of	Six core strategies of TIC conceptual framework	**Design:** Non-randomized controlled trial with a mixture of qualitative and quantitative approach **Purpose**	**N=** 291 IG: n = 144beds CG: n = 147 beds **Demographics** Female Male **Setting**	**IV1:** Physical restraint (Restrain Yourself) implementation **DV1:** -Number of physical restraints rates: (IG vs. CG)	**Tools** -Train the trainer online toolkit **Validity/ Reliability**	**Statistical tests used** -Chi-squared analysis -95% CI	**DV1:** -Physical restraint rate reduced by 22% in the IG at 95% CI compared to baseline. -The association between the IG and	**Level of Evidence** Level III **Strength** -Physical restraint rate reduced by 22% in the IG -Study can be

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
a restraint reduction program **Country** United Kingdom **Funding** Health Foundation **Bias** -Negotiation with trust may influence chosen site		To evaluate the implementation of a restraint minimization program using the principles of TIC in acute mental health settings	Adult mental health ward from seven mental health hospitals in the North West of England. **Inclusion Criteria** -Acute care wards -Mixed-gender -Must offer pharmacological and psychosocial interventions over short admission duration (15 days) **Exclusion** -Non-acute care wards **Attrition** -Not indicated for this study	**DV2:** **-**Outcome of staff/patient survey/interview/ ethnographic data **Definitions** **Physical restraint:** a skilled hands-on method used by trained staff to safely prevent an individual from harm to self or others. **Train the trainer model** is an online toolkit for training events and ongoing implementation of the TIC approach	Train the trainer online toolkit is an evidence-based tool used to help instructors prepare information effectively. -Validity/reliability not reported	-Cluster level data analysis	CG ward was statistically significant, p <0.0002; effect size = 62% reduction relative to control wards. **DV2** -Outcomes not described in this study.	recreated in different settings regardless of geographical region **Weakness** - Lack of randomization **Feasibility** -Took six months to implement -No cost associated with implementation **Application** TIC can reduce conflict and minimize practices that are emotionally, physically and psychological traumatizing to patients and staff.
Vincenti et al. (2022). Psychiatric hospital nurses' attitudes towards trauma-informed care	TIC framework/ Bourdieu's theory	**Design** Mixed method design **Purpose** To evaluate TIC attitudes	**N= 136** **Demographics** Gender Age Grade Highest qualification Length of time worked in hospital	**1V1** Trauma history as a precursor to challenging behaviors in mental health nurses	**Tools:** Attitudes related to TIC scale-version 35 Semi-structured interview **Validity/Reliability**	**Statistical Test used** -Inferential analysis -Pearson correlations	**DV1** Link between trauma and challenging behavior blurred boundaries affect job behavior **DV2**	**Level of evidence** Level III **Strengths** **-**Improved awareness of trauma

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Country Europe **Funding** None **Bias** Researcher in focus group employed by the hospital		of nurses in a Psychiatric hospital	Work setting Job behavior De-escalation training Trauma-related training **Setting** One psychiatric hospital in Malta **Inclusion criteria** Mental health nurses **Exclusion criteria** -Pool nurses **Attrition N= 63 (46.3%)**	**DV1** Subscale demographics effect on job behavior **DV2** TIC attitude/knowledge **Definitions:** None	Attitudes related to TIC scale-version 35-∝ = 0.91	-Statistical Package for social science -Shapiro-Wilk test -Spearman Rank correlation test -Mann-Whitney -Standard ∝ = 0.05 -Kruskal-Wallis **Qualitative** -Theoretical thematic analysis	-Improved TIC attitude/knowledge among nurses Mean score on ARTIC-35 = 196.9 out of 245	-integration of qualitative and quantitative elements of the study - Attitudes related to TIC scale well received by participants **Weakness** -Small sample size in the focus group **Feasibility** Ease of assessment using ARTIC scale **Application** Informs practice on effect of nurse perception led to retraumatization
Schmid et al. (2020). Effect of trauma-informed care on hair cortisol concentration in youth welfare staff	TIC conceptual framework	**Design:** Longitudinal study **Purpose** Evaluate the impact of TIC application on the physiological	**N=** 47 youth welfare employees **Demographics:** 66 % of females from 23 to 60 years old 34% males **Setting:** -Welfare institution	**IV1:** TIC training implementation **DV1:** Hair cortisol concentration **DV2:** Physical aggression exposures	**Tools:** -Childhood trauma questionnaire -Self-report questionnaires - Salivary cortisol enzyme immunoassay	**Statistical Tests Used:** -Descriptive statistics -Pearson's Chi-square	**DV1:** significant difference in hair cortisol concentration in both groups at T4 with p = 0.002 (IG = 0.60, CG = 0.82)	**Level of Evidence:** Level IV **Strengths:** -Reduced stress level and fewer client physical aggression after training/

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
and client physical aggression towards staff: Results of a longitudinal study. **Country**: Switzerland **Funding**: Swiss Federal Office of Justice (government-funded) **Bias**: None		stress and client aggression towards staff in youth welfare institutions.	**Exclusion:** **-** 95 participants due to missing data **Attrition:66.9%** -high staff turnover, maternity leave, medical leave, job change/loss, and retirement	**Definitions:** Hair cortisol concentration measures stress level	**Validity/ Reliability:** -Childhood trauma questionnaire assessment 80% in institutions -Salimetrics UK saliva test <0.007ug/DL analytical sensitivity.	-Fisher's exact test -Mann-Whitney -U-Test -Student's t-test -ANOVA -Standard deviation -Mean	**DV2:** Across all four points, 13.6% to 22.2% of the total sample experienced physical aggression. At T4, staff in the CG were exposed to physical aggression more than the IG, with a $p = 0.029$	implementation of TIC **Weakness:** - More females in CG -Large participant drop-out rate - Self-report of client aggression - less client physical aggression on the IG compared to the CG. **Feasibility:** -Study took three years. However, considering the high rate of traumatic stress experienced by staff, the benefits outweighs the risk. **Application:** TIC is effective in reducing stress, client aggression, and promotes a low level of CF

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Keesler, J.M. (2020). Promoting satisfaction and reducing fatigue: Understanding the impact of trauma-informed organizational culture on psychological wellness among direct service providers **Country** United States **Funding** None **Bias** -Participants enrolled in a $25 gift card raffle draw	TIC conceptual framework	**Design:** Cross-sectional study **Purpose** To understand the factors that contribute to high levels of compassion satisfaction, low levels of CF, and the impact of TIC on direct support professionals ProQol	**N** = 380 **Demographics** - Gender (male/female) -Ethnicity -Level of education -Employment Status -Type of program **Setting** Seven residential agencies (six in New York and one in Alaska) **Inclusion Criteria** -worked as a direct service provider for a minimum of 30 days -worked in a certified/licensed setting for intellectual and developmental disabilities. **Exclusion Criteria** - Any setting that did not meet the inclusion criteria. - duplicates **Attrition** Not reported	**IV1:** Demographic factors. age, ethnicity, gender, education, employment status **DV1:** **-**Trauma-informed organization culture **DV2:** professional quality of life **Definitions** Organizational culture is the shared beliefs and norms that emerge from the interaction of clients, employees, and leadership.	**Tools** -ProQol -5-point Likert Scale **Validity/ Reliability** -ProQol standardized with subscale mean =50, SD = 10, acceptable reliability (CS: alpha = 0.88; Burnout: alpha = 0.75; STS: alpha = 0.81), and good construct validity. -5-point Likert subscale alpha coefficient range:0.721-0.830	**Statistical tests used** -Descriptive analysis -Frequencies -Measures of central tendency -Bivariate analysis -Three stepwise regression models	**DV1:** TIC organizational culture increased CS, and decreased burnout/ STS ($p<0.05$) **DV2** -TIC had a significant positive impact on psychological well-being. -Stepwise regression models for STS are statically significant ($p<0.01$) for both models.	**Level of Evidence** Level IV **Strength** Positive contribution of TIC to professional quality of life **Weakness** -Sample did not represent broad population -Limited in-depth data analysis - Survey instrument did not inquire if participants had prior TIC training - limited to Direct service workers **Feasibility** Study can be replicated in other settings **Application** TIC is beneficial in creating a supportive work environment and increased organizational capacity and productivity through staff satisfaction and retention.

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Voth-Schrag et al. (2022). Compassion Fatigue among the intimate partner violence and sexual assault workforce: Enhancing organizational practice **Country**: Southwestern United States **Funding**: Grant from the office of the governor of Texas (criminal Justice division) **Bias**: Enrolled in $50 drawing after completing survey	TIC framework	**Design:** Cross-sectional survey **Method** Nonprobability sampling method **Purpose:** Personal and organization factors that lead to CF among intimate partner and sexual assault service providers.	**N= 520** **Demographics:** Age Years of work experience Race/ethnicity Child/adult trauma exposure Recent life stressors Staff size Job characteristics Supervision Workplace microaggression Areas of fit **Setting:** State coalitions in Texas (rural, urban, or mixed) **Inclusion Criteria** -18 years old -Currently employed in Texas -In a role that requires 50% of work time **Exclusion:** -Coalitions that did not meet inclusion criteria **Attrition: 51.5%** **(N= 268)**	**IV1:** Predictors of CF **DV1:** CF: Personal/ Organizational factors **DV2:** Microaggression **Definitions:** **CF:** Negative response to occupational stress	**Tools:** ProQoL 5 Areas of work-life scale **Validity/ Reliability:** ProQoL 5 $\propto$ = 0.90 Areas of work life scale with six subscales workload $\propto$ = 0.82 control $\propto$ = 0.85 Reward $\propto$ = 0.91 Community $\propto$ = 0.88 Fairness $\propto$ = 0.88 Values $\propto$ = 0.85	**Statistical Tests Used:** Dummy codes Measures of central tendency Frequency t-test ANOVA Pearson correlation analysis Hierarchical linear regression Normality (skewness/kurtosis) Multicollinearity White's test for homoskedasticity	**DV1:** Significant individual /organizational factors associated with CF ($p < 0.001$). Extent of recent stressor ($r = 0.16$, $p<0.001$), extent of exposure to microaggression ($r = 30$, $p<0.001$) Individual factors significant, p=0.00, 0.12 overall variance in CF Organizational factor significant, p<0.00, 0.37 overall variance in CF. **DV2:** 30.5% exposed to race microaggression. 47% black/Asian /multiracial /native America vs. 29%	**Level of Evidence**: Level IV **Strengths**: Identified factors that impact CF Supports expansion of TIC among staff Increased understanding of organizational practices that impact CF **Weakness**: -Limited generalizability of findings **Feasibility**: Utilized web-based survey. Cost-effective **Application**: TIC practices help organizations foster an environment that promotes resilience to

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
			-Did not complete consent process or core measures				White and 26% Latina (P<0.004)	occupational stress to reduce CF
Garwood et al. (2020). Trauma-informed care intervention for culture and climate change within a welfare agency **Country**: United States **Funding**: None **Bias**: Possible exaggeration of self-report	Sanctuary model/ TIC framework	**Design:** Mixed method study **Purpose:** To evaluate the impact of sanctuary model training on knowledge of TIC and STS among child welfare staff	**N= 291** **Demographics:** Gender (Male/female Race/ethnicity Age group Years of experience **Setting:** Nonprofit pediatric health system across 40 locations **Inclusion Criteria** -Adult staff Assigned/registered for training **Exclusion:** -Registered but did not attend **Attrition: N = 127 (43.6%)** -did not complete pre and post questionnaire	**IV1:** Sanctuary model implementation **DV1:** TIC Knowledge **DV2:** STS knowledge **DV3:** Exploratory outcome **Definitions:** **Trauma:** An impactful event with prolonged adverse effect on an individual's wellbeing. **STS:** Behaviors and emotions resulting from exposure to a traumatic event **Work culture:** The values and beliefs that guide how staff	**Tools:** Survey Monkey Sanctuary model assessment tool -ProQoL5 **Validity/ Reliability:** Survey questionnaire adapted from the agency for healthcare and research and quality hospital survey Sanctuary model assessment -Kaiser-Meyer-Oklin value of 0.88. Scientific rating of 3 by the California evidence-based clearing house ProQoL, standardized scale. STS subscale = 50, alpha scale reliability 0.81	**Statistical Tests Used:** -Descriptive analysis -Paired sample t-tests -MANOVA -ANOVA -Run chart analysis -Turkey's range test -Mean -Standard deviation -Bartlett's test of sphericity -Principal component analysis -Factor analysis	**DV1:** Significant change in self-care, workplace TIC, and client TIC with p-values 0.001, 0.000, and 0.005. Eta-squared with moderate to large effect size **DV2:** No significant change in STS with a p-value of 0.88. Eta squared with small effect size **DV3:** Improved placement stability from 86.5% to 89.4%	**Level of Evidence**: Level IV **Strengths**: Improved TIC knowledge in workplace Improved staff communication/patient interaction Improved capacity to overcome stress Improved staff support Improved self-awareness Available resources/tools for pt. interaction **Weakness**: -No comparison groups

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
				work and model accepted behavior **Workplace climate:** The perception of a work environment and its impact on staff **Sanctuary Model:** A trauma-informed, evidenced-based practice tool designed for system change		**Qualitative** -hierarchical content coding -Thematic text analysis		-low sample size **Feasibility**: Took one year to implement **Application**: Sanctuary model can influence organization practice and culture to be more trauma-informed**.**

Key: **CF** Compassion Fatigue**, CG** Control Group**, CI** Confidence Intervals, **CR** ∝ Cronbach ∝, **CS** Compassion Satisfaction, **DV** Dependent Variable, **IG** Intervention Group, **IV** Independent Variable, **ProQoL** Professional Quality of Life**, RQ** Research Question, **SAMHSA** Substance Abuse and Mental Health Services Administration**, SD** Standard Deviation, **STS** Secondary Traumatic Stress, **TIC** Trauma-Informed Care

Table A2
Evaluation Table for Qualitative Studies

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
Nizum et al. (2020). Nursing interventions for adults following a mental health crisis: A systematic review guided by trauma-informed principles **Country:** Canada **Funding:** Ontario Ministry of Health and Long-term Care **Bias:** None	TIC framework	**Design:** Systematic Review **Method:** Narrative synthesis **Purpose:** To inform healthcare staff on TIC principles and guideline for mental health crisis intervention	**Sample: N= 21** **Demographics:** Varied population **Setting:** -Canada United States -Europe Asia Australia **Inclusion Criteria** -focus on crisis intervention -within four weeks after a crisis event -18 and older -nursing interventions -includes all patient outcomes -all healthcare setting -followed qualitative/quantitative design -Systematic/literature reviews with search strategy -English peer-reviewed journal	• RQ1 -Effective TIC interventions useful for nurses with adults experiencing crisis • RQ2 Effective and TIC interventions useful to nurses to reduce/prevent future adult crisis. **Definitions:** Crisis: Personal experiences that impact normal problem solving, coping mechanisms, or resources Crisis Intervention: A short-term response to restore coping skills, pre-crisis	**Data Collection:** -Assessment of Multiple Systematic Reviews -Critical Appraisal Skills program -Mixed-Method Appraisal tool -Point appraisal scores for studies **Data Dependability:** None identified	**State type used.** -Inter-rate reliability for quality appraisal Kappa score 0.86	(1) Brief crisis intervention: IG improved significantly compared to CG on subscale measures of distress (2) Post-disaster intervention: No evidence on use of psychological first or guidelines on practices using psychosocial support for trauma victims (3) Telecommunication/ Technology-based interventions: Decrease in functioning and post STS symptoms. 80% reduction in suicidal ideation and suicides. (4)	**Level of Evidence:** Level V **Strengths:** Comprehensive integration of TIC principles /approach useful in practice **Weakness:** -could not conduct meta-analysis -small sample size **Feasibility:** -Took four weeks -Cost-effective **Application:** Informs healthcare staff of the need for TIC crisis interventions in a safe manner which promotes resilience

Key: **CF** Compassion Fatigue**, CG** Control Group**, IG** Intervention Group, **IV** Independent Variable, **RQ** Research Question, **TIC** Trauma-Informed Care

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
			-Retrievable articles **Exclusion Criteria** -no research methodology -Interventions outside nursing scope -exposure therapy, reimaging, rewriting, or retelling traumatic event -four weeks after crisis event - No crisis experiences -Under 18 -Primary prevention of crisis -Trauma specific instead of trauma-informed -Not retrievable articles -Non-English articles **Attrition:** Not reported	function and promote control/self-efficacy.			Crisis intervention for people living with borderline personality disorder: Decrease in crisis intervention and treatment in IG than CG	Creates awareness of the impact of trauma and therapeutic response to avoid re-traumatization. And minimize CF

Key: **CF** Compassion Fatigue**, CG** Control Group**, IG** Intervention Group, **IV** Independent Variable, **RQ** Research Question, **TIC** Trauma-Informed Care

Table A3- *Synthesis Table*

Study (Author, year)	Purtle J. (2020)	Hoysted et al. (2019)	Berge-Poppe et al. (2021)	Vincenti et al. (2021)	Duxbury et al. (2019)	Garwood et al. (2020)	Schmid et al. (2020)	Keesler, J.M. (2020)	Voth-Schrag et al. (2022)	Nizum et al. (2020)
Design /LOE	Systematic Review I	Parallel group superiority RCT II	Quasi-experimental design III	Mixed method study III	Non-RCT mixed method III	Mixed method design IV	Longitudinal study IV	Cross-sectional study IV	Cross-sectional study IV	Systematic Review V
Sample Size	N= 23	N= 71	N= 13	N= 136	N= 291	N= 291	N= 47	N =380	N= 520	N= 21
Participants	Staff/patients	ED Staff	PSP	MHSP	MH Wards	CWS	CYWS	DSP	DSP	Staff/patients
Female Percentage	-	96.7%	-	75%	-	93%	66%	84.2%	-	-
Attrition	-	22.6%	-	-	-	-	67%	5%	34%	-
Sample										
Age		X	X	X		X			X	
Gender		X		X	X	X	X	X		
Yrs. Of Experience				X		X			X	
Past TIC Training		X		X						
Trauma/stressors/others	X			X					X	X
Setting										
INPT MH Hospitals	X		X	X	X	X				
Acute care ED//Clinic	X	X	X				X		X	
Others	X		X					X		X
Interventions/Major Findings										
Restraint/Seclusions	X				X					
TIC education/ training	X	X	X		X	X	X			X
Trauma/microaggression				X				X	X	
CF/BO/STS	↓	↓	↓		↓	↓	↓	↓		↓
TIC knowledge/ culture	↑	↑	↑	↑	↑	↑		↑	↑	↑
ProQoL/ CS		↑			↑	↑	↑	↑		↑
Tools										
Online training kit	X	X			X					
Questionnaire	X	X		X		X	X			
Knowledge /TIC Scales	X	X								
Trauma/TIC scales				X		X	X			
ProQoL/Likert Scales			X			X		X	X	
Appraisal/review										X

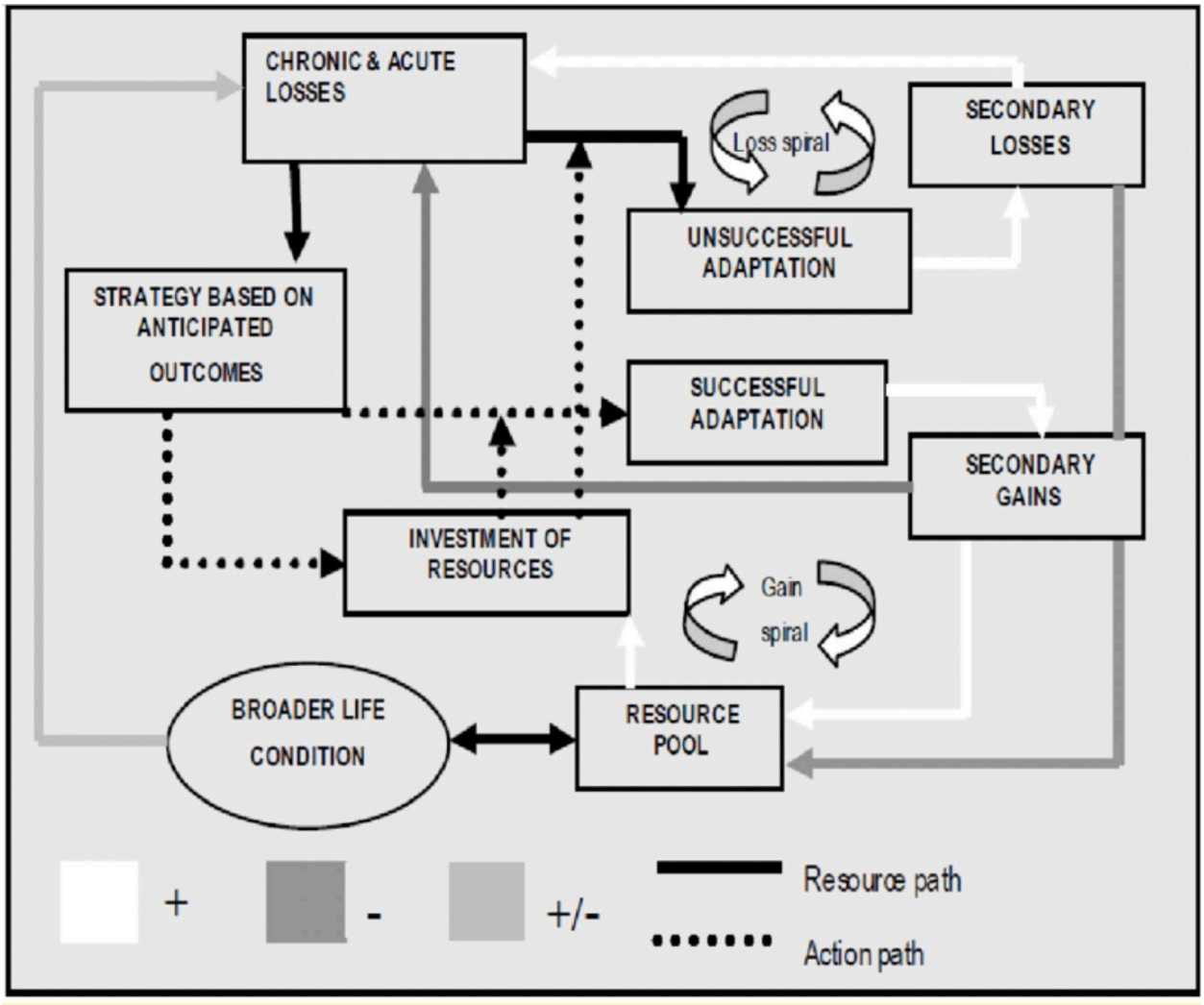
Key: BO Burnout, **CF** Compassion Fatigue, **CS** Compassion Satisfaction , **CWS** Child Welfare Staff, **CYWS** Child-Youth Welfare Staff**,** ↓ Decreased **DSP** Direct Support Professionals, **ED** Emergency Department, ↑ Increased **INPT** Inpatient **LOE** Level of Evidence **MH** Mental Health, **MHSP** Mental Health Service Providers, **ProQoL** Professional Quality of Life, **PSP** Pediatric Service Providers, **RCT** Randomized Controlled Trial, **STS** Secondary Traumatic Stress**, TIC** Trauma Informed Care

Appendix B

Models and Frameworks

Figure B1

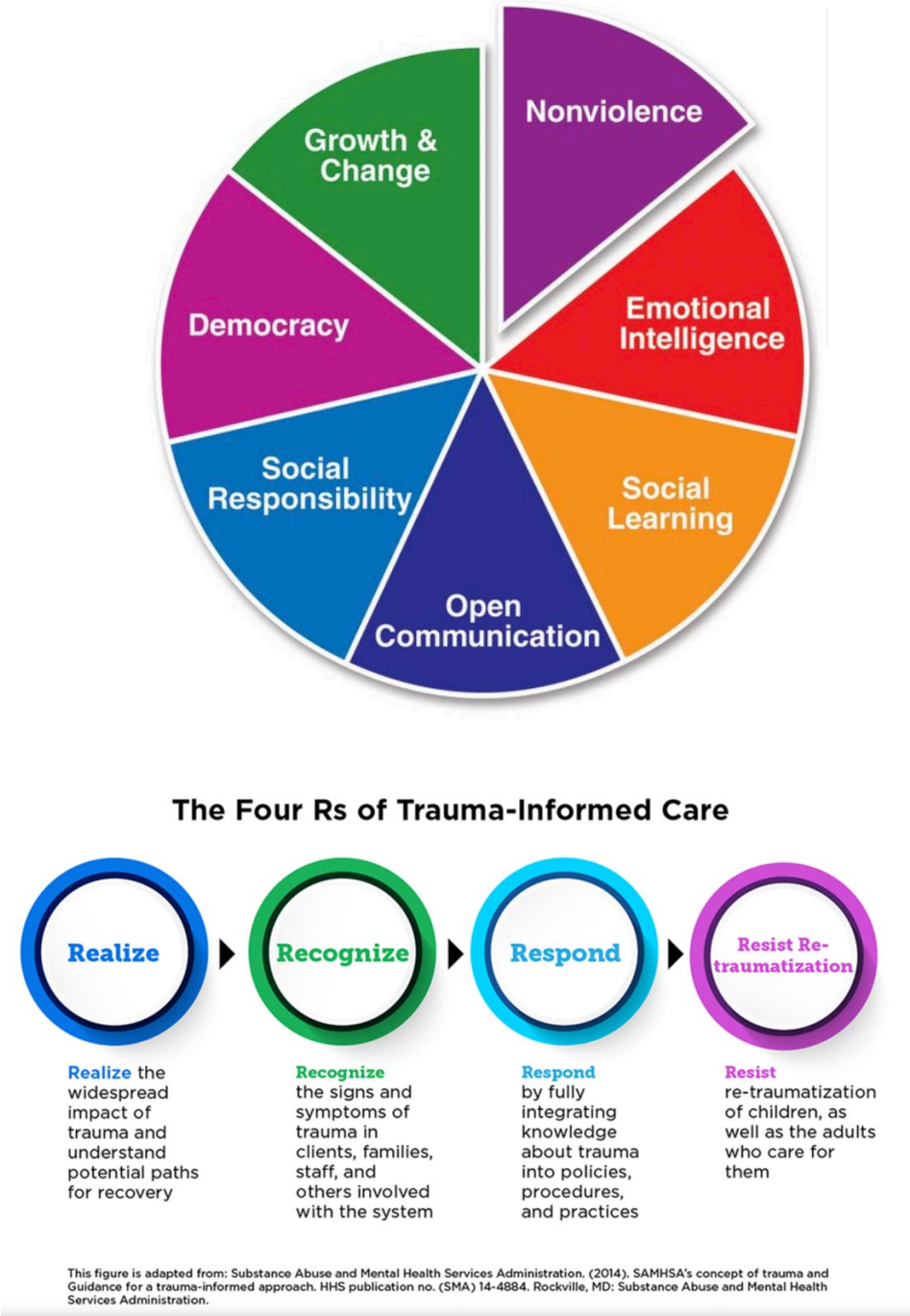
Conservation of Resources Theory



(Hobfoll, 1989)

Figure B2

The Sanctuary Model Theoretical Framework



(Bloom, 1980)

Figure B3

Rosswurm & Larabee Implementation Framework

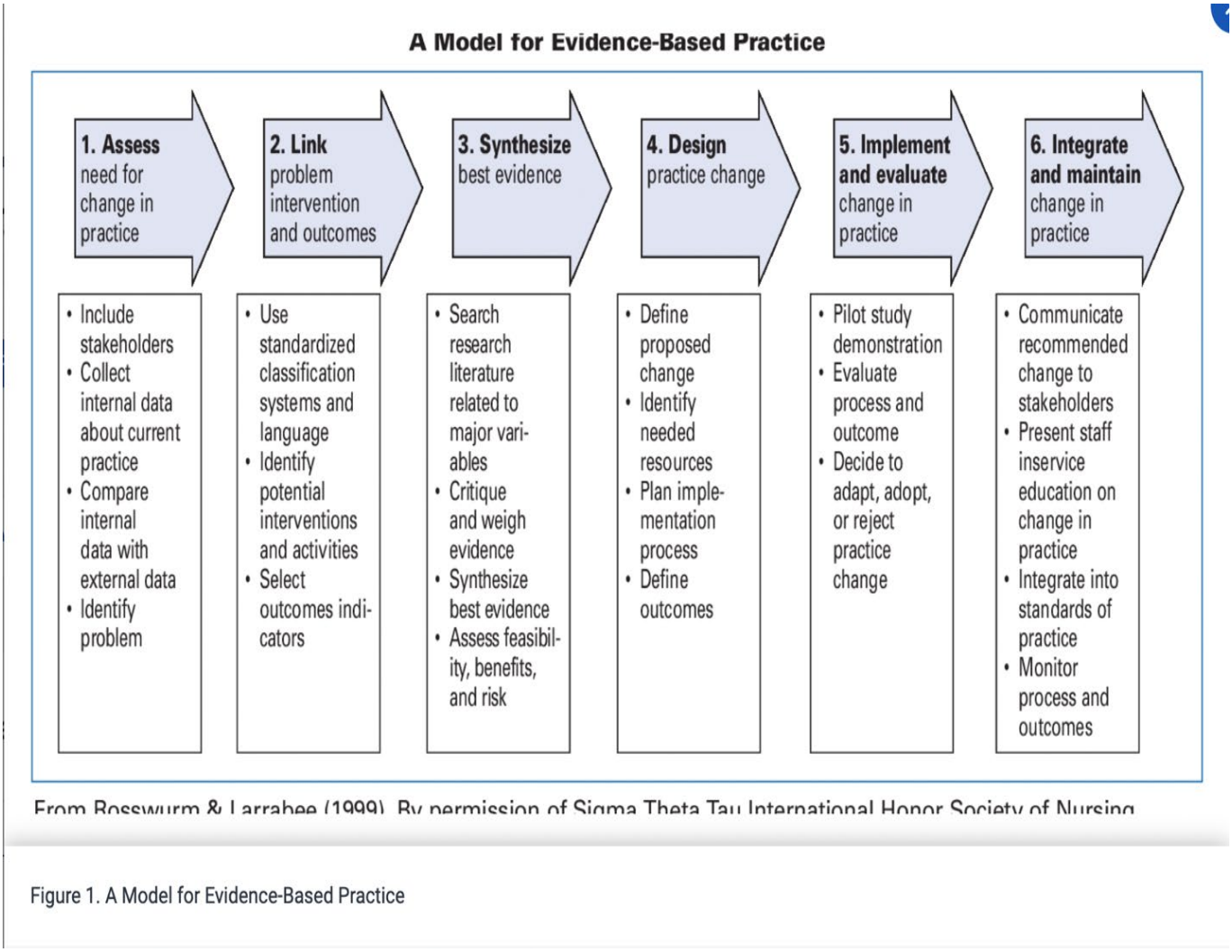


Figure 1. A Model for Evidence-Based Practice

(Rosswurm & Larabee, 1999)

Figure B4

Mean of Pre/Post ProQol scores based on 95% Cl.